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# REPORT OF THE SECRETARY OF THE SMITHSONIAN INSTITUTION

## 1924

SMITHSONIAN INSTITUTION
WASHINGTON, D. C.

# REPORT OF THE SECRETARY OF THE SMITHSONIAN INSTITUTION

FOR THE YEAR ENDING JUNE 30

1924

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# THE SMITHSONIAN INSTITUTION

June 30, 1924

*Presiding officer ex officio.*—CALVIN COOLIDGE, President of the United States.

*Chancellor.*—WILLIAM HOWARD TAFT, Chief Justice of the United States.

*Members of the Institution:*

CALVIN COOLIDGE, President of the United States.
WILLIAM HOWARD TAFT, Chief Justice of the United States.
CHARLES EVANS HUGHES, Secretary of State.
ANDREW W. MELLON, Secretary of the Treasury.
JOHN WINGATE WEEKS, Secretary of War.
HARLAN F. STONE, Attorney General.
HARRY S. NEW, Postmaster General.
CURTIS D. WILBUR, Secretary of the Navy.
HUBERT WORK, Secretary of the Interior.
HENRY CANTWELL WALLACE, Secretary of Agriculture.
HERBERT CLARK HOOVER, Secretary of Commerce.
JAMES JOHN DAVIS, Secretary of Labor.

*Regents of the Institution:*

WILLIAM HOWARD TAFT, Chief Justice of the United States, Chancellor.
HENRY CABOT LODGE, Member of the Senate.
A. OWSLEY STANLEY, Member of the Senate.
MEDILL MCCORMICK, Member of the Senate.
ALBERT JOHNSON, Member of the House of Representatives.
R. WALTON MOORE, Member of the House of Representatives.
WALTER H. NEWTON, Member of the House of Representatives.
GEORGE GRAY, citizen of Delaware.
CHARLES F. CHOATE, Jr., citizen of Massachusetts.
HENRY WHITE, citizen of Washington, D. C.
ROBERT S. BROOKINGS, citizen of Missouri.
IRWIN B. LAUGHLIN, citizen of Pennsylvania.
FREDERIC A. DELANO, citizen of Washington, D. C.

*Executive committee.*—GEORGE GRAY, HENRY WHITE, FREDERIC A. DELANO.
*Secretary of the Institution.*—CHARLES D. WALCOTT.
*Assistant Secretary.*—C. G. ABBOT.
*Chief clerk.*—HARRY W. DORSEY.
*Accounting and disbursing agent.*—N. W. DORSEY.
*Editor.*—W. P. TRUE.
*Assistant librarian.*—PAUL BROCKETT.
*Appointment clerk.*—JAMES G. TRAYLOR.
*Property clerk.*—J. H. HILL.

## NATIONAL MUSEUM

*Administrative assistant to the secretary, in charge.*—W. DE C. RAVENEL.

## NATIONAL GALLERY OF ART

*Director.*—WILLIAM H. HOLMES.

## FREER GALLERY OF ART

*Curator.*—JOHN ELLERTON LODGE.

## BUREAU OF AMERICAN ETHNOLOGY

*Chief.*—J. WALTER FEWKES.

## INTERNATIONAL EXCHANGES

*Chief clerk.*—C. W. SHOEMAKER.

## NATIONAL ZOOLOGICAL PARK

*Superintendent.*—N. HOLLISTER.

## ASTROPHYSICAL OBSERVATORY

*Director.*—C. G. ABBOT.

## REGIONAL BUREAU FOR THE UNITED STATES, INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE

*Assistant in charge.*—LEONARD C. GUNNELL.

# REPORT

OF THE

# SECRETARY OF THE SMITHSONIAN INSTITUTION

CHARLES D. WALCOTT

FOR THE YEAR ENDING JUNE 30, 1924

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*To the Board of Regents of the Smithsonian Institution:*

GENTLEMEN: I have the honor to submit herewith the customary annual report showing the activities and conditions of the Smithsonian Institution and its branches during the fiscal year ending June 30, 1924. The first 26 pages of the report contain an account of the affairs of the Institution proper, with brief abstracts of the work carried on by the various branches of the Institution, while appendixes 1 to 10 present somewhat more detailed summaries of the operations of the United States National Museum, the National Gallery of Art, the Freer Gallery of Art, the Bureau of American Ethnology, the International Exchanges, the National Zoological Park, the Astrophysical Observatory, the United States Regional Bureau of the International Catalogue of Scientific Literature, the Smithsonian Library, and of the publications of the Institution and its branches.

## THE SMITHSONIAN INSTITUTION

### THE ESTABLISHMENT

The Smithsonian Institution was created by act of Congress in 1846, according to the terms of the will of James Smithson, of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." In receiving the property and accepting the trust Congress determined that the Federal Government was without authority to administer the trust directly, and therefore constituted an "establishment" whose statutory members are "the President, the Vice President, the Chief Justice, and the heads of the executive departments."

## THE BOARD OF REGENTS

The affairs of the Institution are administered by a Board of Regents whose membership consists of "the Vice President, the Chief Justice, three Members of the Senate, and three Members of the House of Representatives, together with six other persons other than Members of Congress, two of whom shall be resident in the City of Washington and the other four shall be inhabitants of some State, but no two of them of the same State." One of the Regents is elected chancellor by the board; in the past the selection has fallen upon the Vice President or the Chief Justice; and a suitable person is chosen by them as secretary of the Institution, who is also secretary of the Board of Regents and the executive officer directly in charge of the Institution's activities.

In regard to the personnel of the board, the following changes occurred during the year: Through his succession to the Presidency on August 2, 1923, owing to the death of President Harding, the Hon. Calvin Coolidge automatically ceased to be a Regent, thus terminating his office as chancellor of the Institution, and to fill the vacancy thus created, the Hon. William H. Taft was elected chancellor of the board on December 13, 1923. Walter H. Newton, Member of the House of Representatives from Minnesota, was appointed a Regent by the Speaker of the House to fill the vacancy caused by the election to the Senate of Frank L. Greene.

The roll of Regents at the close of the fiscal year was as follows: William H. Taft, Chief Justice of the United States, chancellor; Henry Cabot Lodge, Member of the Senate; Medill McCormick, Member of the Senate; A. Owsley Stanley, Member of the Senate; Albert Johnson, Member of the House of Representatives; R. Walton Moore, Member of the House of Representatives; Walter H. Newton, Member of the House of Representatives; George Gray, citizen of Delaware; Charles F. Choate, jr., citizen of Massachusetts; Henry White, citizen of Washington, D. C.; Robert S. Brookings, citizen of Missouri; Irwin B. Laughlin, citizen of Pennsylvania; and Frederic A. Delano, citizen of Washington, D. C.

## GENERAL CONSIDERATIONS

In spite of the increasing difficulty in holding its own experienced by the Institution in late years on account of its meager resources and the increasing costs of maintenance, one of its primary functions, the "diffusion of knowledge among men," is carried out with ever-increasing scope, and its contacts with various groups of people are continually growing in number. Of its 11 distinct series of publications, chiefly technical contributions to scientific knowledge though including some more popular papers appealing to the general reader

interested in the progress of science, there are issued every year about 100 volumes and pamphlets, of which there are sent out nearly 150,000 copies. A large proportion of this number go to libraries throughout the world, where they are readily available to the public, and many of its publications are now standard works in various branches of science. Besides this steady flow of publications, the Institution, through the public exhibits of the National Museum, the National Gallery of Art, and the National Zoological Park, imparts an incalculable amount of knowledge on natural history, anthropology, art, and history to the hundreds of thousands of visitors from all parts of the country who come to the Nation's Capital every year. In late years also the value of the arts and industries department of the Museum is becoming more and more appreciated by the public and by industrial organizations, and the exhibits portraying the scope of entire industries are being augmented at an increasing rate by the cooperation of trade associations who assemble these comprehensive exhibits from a number of manufacturers. The auditorium of the National Museum is used every year by a large number of local and national scientific and other societies for the dissemination of useful knowledge through conferences and lectures, and the scientific staffs of the Museum, the Bureau of American Ethnology, and other branches of the Institution contribute their share in the program of the diffusion of knowledge through scientific and semipopular lectures, both officially and unofficially. The archeological excavations conducted in Florida during the past winter by the Chief of the Bureau of American Ethnology were known throughout Florida as the "Smithsonian excavations" and attracted thousands of visitors, to whom Doctor Fewkes lectured several times each week on the prehistoric Indian inhabitants of the region. The latest addition to the Institution's program in the diffusion of knowledge was the inauguration during the year of a series of radio talks on scientific subjects presented in popular form, and the response to these was so widespread that the series will be continued with increased scope during the coming year. This program of dissemination of knowledge in scientific matters is carried on, as stated at the beginning, with the greatest difficulty because of the very limited endowment of the Institution, and were more means at its disposal, the Institution would be enabled to greatly expand its work along these lines, as well as in its other fundamental purpose, the increase of knowledge through scientific research and exploration.

Perhaps the most important development of the year in the Institution's affairs is the promising outlook for a building to house the growing National Gallery of Art. As noted in last year's report, Congress has provided a site in the Smithsonian Park for such

a building and funds were obtained privately for the preparation of plans. Mr. Charles A. Platt was selected as the architect and at the close of the year the plans were well under way. In addition to this, Senator Lodge during the year offered an amendment to the deficiency appropriations bill which would have provided funds for beginning the erection of a building, but the amendment was not accepted. However, these developments indicate an awakening to the realization that America should no longer be practically the only civilized nation on earth without a National Art Gallery, and it is hoped that in the near future funds will be provided for a suitable home for the valuable art collections belonging to the Nation.

## FINANCES

The permanent investments of the Institution consist of the following:

Deposited in the Treasury of the United States ..... $1,000,000.00

CONSOLIDATED FUND

Miscellaneous securities, etc., either purchased or acquired by gift; cost or value at date acquired ..... 194,826.50

Charles D. and Mary Vaux Walcott research fund, stock (gift) value ..... 11,520.00

The sums invested for each specific fund, or securities, etc., acquired by gift are described as follows:

| Fund | United States Treasury | Consolidated fund | Walcott research fund | Total |
|---|---|---|---|---|
| Avery fund | $14,000.00 | $29,557.52 | | $43,557.52 |
| Virginia Purdy Bacon fund | | 50,362.34 | | 50,362.34 |
| Lucy H. Baird fund | | 1,349.58 | | 1,349.58 |
| Chamberlain fund | | 34,952.27 | | 34,952.27 |
| Habel fund | 500.00 | | | 500.00 |
| Hamilton fund | 2,500.00 | 500.00 | | 3,000.00 |
| Caroline Henry fund | | 1,074.00 | | 1,074.00 |
| Hodgkins general fund | 116,000.00 | 37,226.57 | | 153,226.57 |
| Hodgkins specific fund | 100,000.00 | | | 100,000.00 |
| Bruce Hughes fund | | 12,013.62 | | 12,013.62 |
| Morris Loeb fund | | 7,390.00 | | 7,390.00 |
| Lucy T. and George W. Poore fund | 26,670.00 | 13,238.86 | | 39,908.86 |
| Addison T. Reid fund | 11,000.00 | 4,919.00 | | 15,919,00 |
| Rhees fund | 590.00 | 268.00 | | 858.00 |
| George H. Sanford fund | 1,100.00 | 506.00 | | 1,606.00 |
| Smithson fund | 727,640.00 | 1,468.74 | | 729,108.74 |
| Charles D. and Mary Vaux Walcott research fund | | | $11,520.00 | 11,520.00 |
| Total | 1,000,000.00 | 194,826.50 | 11,520.00 | 1,206,346.50 |

Dr. William L. Abbott has continued his contributions during the year for researches in natural history and collection of specimens in China.

Further generous contributions have been made by Mr. John A. Roebling for researches in astrophysics, providing for aiding the

solar observing stations in Chile and the United States, for publication of scientific papers, for purchase of instruments, and for making meteorological investigations elsewhere.

Mr. Washington A. Roebling has made a generous donation for the purchase of minerals.

The National Academy of Sciences has given the sum of $1,500 for researches in paleontology.

The Institution is also indebted to the Research Corporation for $1,250 for research work.

*Freer Gallery of Art.*—In compliance with the instructions of the Board of Regents, a sinking fund for the investment of surplus income from the Freer bequest has been created. The amount paid into this fund during the year was $138,688.75. The invested funds of the Freer bequest are classified as follows:

| | |
|---|---|
| Curator's fund | $278,825.50 |
| Court and grounds fund | 278,825.50 |
| Court and grounds, maintenance fund | 69,683.75 |
| Residuary legacy | 2,676,232.75 |
| Sinking fund | 138,688.75 |
| Total | 3,442,256.25 |

The practice of depositing on time, in local trust companies, and banks, such revenues as may be spared temporarily has been continued during the past year, and interest on these deposits has amounted to $1,014.59. The income during the year for current expenses, consisting of interest on permanent investments and other miscellaneous sources, including cash balance at the beginning of the year, amounted to $72,558.59. Revenues and principal of funds for specific purposes, except the Freer bequest, amounted to $91,919.99. Revenues on account of Freer bequest amounted to $234,446.50. Cash recalled from time deposits $34,000; aggregating a total of $432,925.08.

The disbursements, described more fully in the annual report of the executive committee, were classed as follows: General objects of the Institution, $64,960.03; for specific purposes (except the Freer bequest), $58,501.72; temporary advances for field expenses, etc., in excess of repayments, $4,130.12; expenditures pertaining to the Charles L. Freer bequest, $291,768.05; and cash balance on hand June 30, 1924, $13,565.16.

The following appropriations were intrusted by Congress to the care of the Smithsonian Institution for the fiscal year 1924:

| | |
|---|---|
| International exchanges | $43,000 |
| American ethnology | 44,000 |
| International Catalogue of Scientific Literature | 7,500 |
| Astrophysical Observatory | 15,500 |

| | | |
|---|---|---|
| National Museum: | | |
| Furniture and fixtures | $20,000 | |
| Heating and lighting | 70,000 | |
| Preservation of collections | 312,500 | |
| Building repairs | 10,000 | |
| Books | 2,000 | |
| Postage | 500 | |
| | | 415,000 |
| National Gallery of Art | | 16,000 |
| National Zoological Park | | 125,000 |
| Increase of compensation | | 112,704 |
| Printing and binding | | 77,400 |
| Total | | 856,104 |

## RESEARCHES AND EXPLORATIONS

Every year the Institution engages, so far as its limited means will permit, in explorations and field work, and a few of these expeditions will be mentioned here briefly to indicate the nature of the work accomplished. A number of other expeditions and researches in various fields of science are described in the appendixes on the National Museum, the Bureau of American Ethnology, the Astrophysical Observatory, and the Freer Gallery of Art. In a few cases, the entire expedition is financed and managed by the Institution, but the small amount of income remaining each year, after the administrative costs of carrying on the work of the Institution are met, is soon exhausted, and thereafter it is only possible to cooperate in various ways in expeditions financed by other scientific institutions.

### GEOLOGICAL EXPLORATIONS IN THE CANADIAN ROCKIES

During the summer and early fall of 1923, your Secretary continued his geological field work in the Canadian Rockies of Alberta and British Columbia. His main objective was to secure data on the pre-Devonian strata from the Clearwater River southeast to the Bow Valley and along the eastern side of the Columbia River Valley.

It was found that the Mons formation which was discovered on the headwaters of the Saskatchewan River at Glacier Lake, extended southwesterly on the western side of the Continental Divide in British Columbia to the southern end of the Stanford Range between the Kootenay River and Columbia Lake, which is at the head of the Great Columbia River, which here flows northwesterly in what is known as the Rocky Mountain Trench. The valley of this latter river was found to be largely underlain by the limestones and shales of the Mons formation of the Ozarkian system, and the strata have been upturned, faulted, and folded prior to the great pre-Glacial

period of erosion that cut out the Rocky Mountain Trench. On the eastern side of this valley, the Mons formation is more than 3,800 feet in thickness in the Beaverfoot-Brisco-Stanford Range, and contains four well-developed fossil faunas which show it to lie between the Upper Cambrian and the Ordovician systems of this and other parts of the continent. Near the head of the Sinclair Canyon there was discovered a great development of the Lower Ordovician, and at several localities cliffs of massive Upper Cambrian limestones were recognized beneath the Mons formation.

This whole region is ideal for geological field work, as the numerous canyons and ridges expose many of the formations from base to summit. On the whole, the season was a successful one for its geological results.

### EXPEDITION TO DINOSAUR NATIONAL MONUMENT, UTAH

In May, 1923, Mr. C. W. Gilmore, curator of vertebrate paleontology, National Museum, was detailed to take charge of an expedition to the Dinosaur National Monument in northeastern Utah for the purpose of securing for exhibition in the Museum a mountable skeleton of the large sauropodous dinosaur, *Diplodocus*. The fossil deposit in this region was discovered in 1909 by Mr. Earl Douglass, and has been worked continuously since that time by the Carnegie Museum of Pittsburgh. By 1922, the Carnegie Museum had secured sufficient material for their purposes, and the Institution was notified of their intention to cease operations, leaving uncovered two partially articulated specimens of *Diplodocus*, a mountable skeleton of which has long been desired by the National Museum. Mr. Gilmore arrived at the fossil quarry on May 15, and a preliminary survey showed that one of the two skeletons would form the basis of a mountable specimen while the preserved parts of the other would serve admirably to replace the missing bones of the first. Regular work in the quarry began on May 24 and continued until August 8. Mr. Gilmore employed three men with experience in this field, and was assisted after June 5 by Mr. Norman H. Boss, of the Museum's paleontological force. Regarding the difficulties involved, Mr. Gilmore says:

> The work of quarrying these often fragile bones from the ledge of rock without doing irreparable damage is a slow and tedious operation, involving the skill of both the stone cutter and the miner. Further difficulty is encountered in handling by primitive methods the immense blocks of rock inclosing the bones, with the subsequent arduous work of boxing and transportation. The largest block quarried, containing the sacrum with attached hip bones, weighed nearly 6,000 pounds when ready for shipment. The transportation of the boxes to the railroad involved a haul by teams of 150 miles across country and over a range of mountains 9,100 feet above sea level. However, 34 large boxes having a combined weight of over 25 tons were safely transported.

As a result of this expedition, enough material was secured for a good skeletal mount of *Diplodocus* which, it is estimated, will exceed 80 feet in length with a height at the hips of 14 feet.

### BIOLOGICAL EXPLORATIONS IN THE YANG-TZE VALLEY, CHINA

Through the continued generosity of Dr. W. L. Abbot, Mr. Charles M. Hoy sailed for China toward the close of 1922 to collect vertebrates for the Institution in the Yang-Tze Valley region. His first collecting was done in the Yochow district, where he obtained a total of 169 mammals and 84 birds. At the beginning of the fiscal year just past, Hoy left for a trip through Hunan and Kiangsi, in the course of which many interesting specimens were obtained. From Kuling, Kiangsi, a letter was received from Hoy, describing a series of misfortunes, as follows:

> The day after writing my last letter to you, from Iningchow [never received], I had a bad fall and badly wrenched my back. For about a week I was scarcely able to crawl about. Just when my back was getting so I could straighten up I had another accident and shot myself through the left leg with the Colt 45 automatic. The accident was due to a "hang fire." The gun did not go off when the hammer struck and so I lowered the gun to eject the shell when the shell exploded. The bullet struck me on the inside of the leg 4 inches above the ankle bone. * * * The wound is healing nicely, but the doctor says that it may be several months before I get full use of my foot and that I will most likely have a slight permanent limp. However, I am hoping that it won't interfere with my collecting, but even if I won't be able to do much walking myself I have one man who is a crack shot with the shotgun and another that is fair with the rifle, so I ought to be able to get specimens anyhow. My trip down from Iningchow was rather uneventful except for the above accidents. We were under military guard all the way from there to Kuikiang. The country, it seems, is full of disbanded Northern soldiers who have driven out the natives and occupied their farms. Consequently it is dangerous for even natives to travel through that region. The final explanation given me, as to the reason of the escort, was that it was feared that my guns and ammunition might fall into their hands. We were fired on once, in the night, but aside from a lot of shouting and that one shot, nothing happened. We could never learn who fired the shot, but the way things turned out I am convinced that we were mistaken for bandits and the shot was fired to scare us off. Owing to the accidents, I have not been able to secure any specimens since the writing of my last letter. My outfit has not yet arrived owing to the heavy rains, but as soon as it gets here I plan to send my men out collecting so I will be able to get specimens notwithstanding the fact that I am confined to the house.

The gunshot wound was apparently healing, but while Hoy was still confined to the house he developed a severe case of appendicitis, necessitating an immediate operation, from which he never recovered.

### BOTANICAL EXPLORATION IN PANAMA AND CENTRAL AMERICA

Dr. William R. Maxon, associate curator of plants in the National Museum, was detailed in May, 1923, to accompany an expedition

from the Department of Agriculture to Panama and Central America. Unfortunately rains interfered seriously with field work in both Panama and Nicaragua, but in spite of this handicap, a general botanical collection of about 4,500 specimens was made, about equally divided among Panama, Nicaragua, and Costa Rica. In his report on the expedition, Doctor Maxon says:

Aside from two days given to collecting in the interesting Juan Diaz region, east of Panama City, work in Panama was mostly confined to the Canal Zone, being conducted chiefly from headquarters on the Pacific side, at Balboa, with the courteous assistance of the Panama Canal authorities. Of particular interest were trips to Barro Colorado, a large wooded island in Gatun Lake opposite Frijoles, recently set aside as a wild reserve upon representation of the Institute for Research in Tropical America; the virgin forest region at the headwaters of the Rio Chinilla, above Monte Lirio; and the Fort Sherman Military Reservation, which includes the famous old Spanish stronghold, Fort San Lorenzo, at the mouth of the Chagres. All these localities are forested and are rich in palms, and special attention was directed to obtaining material in this difficult group. With the steady clearing of leased land for planting bananas the original forest in the Canal Zone is rapidly disappearing, and with it its characteristic palm associations. * * *

About three weeks were spent in Nicaragua, wholly in the region west of Lake Nicaragua and mainly working from Managua, the capital, which lies picturesquely at a new elevation 90 miles inland from the Pacific coast, flanked by numerous volcanoes. Except for the volcanoes and the low range called the Sierra, given over to coffee production, western Nicaragua is low and almost entirely cleared of forest. Cane and grazing are the main industries. The soil is largely a rich black loam of volcanic origin, and supports a luxuriant growth of tall grasses, the arborescent vegetation being mainly confined to roadsides and abandoned "potrero." The most interesting trips were to the region of Casa Colorado in the Sierra, and to Mombacho and Santiago volcanoes. The material collected indicates a rich flora for the higher mountain slopes, one that would amply repay extended exploration.

From Corinto Doctor Maxon proceeded by steamer to Puntarenas, the Pacific port of Costa Rica. The ascent by rail from this port in the semiarid coastal plain to the capital, San José, lying at an altitude of 1,140 meters in the cool *meseta central*, is through a region remarkably diverse as to physiography. From San José three principal trips were made: First, to La Palma, a classical botanical locality on the cloud-drenched southwestern slopes of Irazú volcano; next to Santa Clara in the mountains a few leagues south of Cartago; then to Vara Blanca lying high up in an almost unexplored region between the volcanoes Poás and Barba. Special attention was here given to ferns and orchids, both groups being extremely abundant both as to species and individuals, and many new and interesting species in these and other groups were collected.

### STUDIES ON EARLY MAN IN EUROPE

During the summer and early fall of 1923 Dr. Aleš Hrdlička, curator of physical anthropology, National Museum, revisited the important sites of early man in western and central Europe, as well as the institutions in which are preserved the skeletal remains of

ancient man and the fossil European apes. During the trip Doctor Hrdlička acted as director of the American School in France for Prehistoric Studies, and was accompanied by a number of American graduate students. One of the principal objects of the trip was to secure accurate measurements of the teeth, particularly the lower molars, of the larger fossil apes and early man by one observer, by a strictly defined method, and with accurate instruments. Another object was to take photographs of the various sites of early man of which good photographs were not available.

The trip included visits to various regions in England, Holland, Belgium, France, Germany, Bohemia, Austria, and Croatia. In these countries practically all of the important sites were visited and as far as possible the skeletal remains of early man and the fossil apes in museums along the route were examined and measured. In many cases assistance was given by prominent anthropologists connected with these institutions in giving first-hand reviews of the knowledge concerning the specimens and sites, and sometimes in personal conduct to the sites themselves. In Holland Doctor Hrdlička had the unique privilege of visiting Prof. Eugene Dubois, of Haarlem, and seeing the famous remains of the Pithecanthropus as well as the other Java remains in his possession. Regarding the Pithecanthropus remains, Doctor Hrdlička says:

> The remains of, or those attributed to, the Pithecanthropus consist of the now thoroughly cleansed skull-cap, a femur and three teeth, two molars and one premolar. Besides these there is from another locality a piece of a strange primitive lower jaw, and also two skulls with many parts of the skeletons of a later, though yet rather primitive, type of man from consolidated calcareous deposits in still another part of the island.
>
> The examination of the originals belonging to the Pithecanthropus find was in many respects a revelation. It was seen that none of the casts now in various institutions are accurate, and that the same is true of the so far published illustrations, above all those of the teeth and femur. The originals are even more important than held hitherto. The new brain cast shows an organ very close to human. The femur is without question human. When the detailed study of all these specimens is published, which Doctor Dubois expects to occur before the end of the winter, the specimens, though all controversial points may not be settled, will assume even a weightier place in science than they have had up to the present.
>
> The trip resulted in an overwhelming sense of the greatness and scientific importance of the field of early man in western and central Europe and in a keen appreciation of the opportunities for cooperation in this field by American students.

## SMITHSONIAN SERIES OF RADIO TALKS

Beginning on October 19, 1923, arrangements were made with radio station WRC, of the Radio Corporation of America, to broadcast a series of talks on the Institution and its branches. These

were continued until November 16, with such success that in the spring the conclusion was reached that there would be mutual advantage to the Institution and to station WRC in giving a series of talks on scientific subjects. Accordingly there was established a regular Smithsonian period every Wednesday at 6.15 p. m., and the series was opened on April 9 by a talk on "The giants in the animal world," by Mr. Austin H. Clark. This was followed by 10 others, the last one being given on June 18, when the program was discontinued for the summer months.

This new means of carrying out the Institution's function of the diffusion of knowledge appears to be highly effective, as indicated by the number of responses to the talks received at the Institution and at the broadcasting station. The direction of the entire program was placed under Mr. Austin H. Clark, of the National Museum, who secured the cooperation not only of the members of the staff of the Institution and its branches but also of the Carnegie Institution of Washington and of the various scientific bureaus of the Government whose work is complementary to that of the Institution. Altogether there were given during the year 18 talks in the Smithsonian series, as follows:

The Smithsonian Institution, by Austin H. Clark.

The Work of the Smithsonian Observatory, by C. G. Abbot.

The Bureau of Ethnology: What It Is and What It Does, by J. Walter Fewkes.

The National Gallery of Art, by W. H. Holmes.

Department of Arts and Industries of the United States National Museum, by Carl W. Mitman.

The Historical Collections of the Smithsonian Institution, United States National Museum, by Theodore T. Belote.

The Giants of the Animal World, by Austin H. Clark.

Little Folks in Greenland, by Elisabeth Deichmann.

The National Zoological Park, under the direction of the Smithsonian Institution, by N. Hollister.

Useful Plants from America, by F. L. Lewton.

Shooting Stars and What They Are, by George P. Merrill.

Animal Terrors of Past Ages—Dinosaurs, by Charles W. Gilmore.

Surveying the Ocean with the Non-Magnetic Yacht Carnegie, by J. P. Ault, of the Carnegie Institution.

Program of native Indian music arranged by Miss Frances Densmore.

Large Game Animals of North America, by E. W. Nelson, Chief of the Bureau of Biological Survey.

Flying Animals, by Austin H. Clark.

Atmospheric Electricity, by D. J. Mauchly, of the Carnegie Institution.

The interest shown in these informative radio talks on scientific matters and the vast audience which it is possible to reach through the microphone make it apparent that this is destined to become a

most important phase of the Institution's work in diffusing knowledge, and it is intended to renew the series with increased scope in the fall.

### ASSISTANCE TO JAPANESE LIBRARIES DESTROYED DURING THE RECENT EARTHQUAKE

The recent disastrous earthquake in Japan destroyed large collections of books in many of the Japanese libraries, including the entire collection of 700,000 volumes in the library of the Imperial University of Tokyo. During the year an appeal was received in this country from the Japanese Association of the League of Nations for books to replenish these unfortunate libraries, especially those of universities and colleges. The Institution made up as nearly as possible complete sets of its own publications and forwarded them to a number of the Japanese libraries, the volumes and pamphlets thus sent totaling several hundred. In addition, the International Exchange Service of the Institution served as a central forwarding agency for the other American institutions desiring to contribute their publications, and during the year several large consignments containing many thousands of publications were transmitted to Japan.

### COOPERATION WITH ORGANIZATIONS MEETING IN WASHINGTON

There has been during the year an unusually large number of meetings in Washington of scientific or other organizations whose work has been in some way related to that of the Smithsonian. In providing an auditorium in the Museum for these meetings, and through the assistance given in various ways by the scientific and administrative staff, the Institution has been able to render a real service in promoting scientific work and discussion. To illustrate the appreciation of this service by organizations taking advantage of these facilities, there may be mentioned three important meetings held during the year. The American Association of Museums held its nineteenth annual meeting in Washington May 10–13, most of the sessions being held at the National Museum. After the meeting the secretary of the association wrote to the Institution in part as follows:

> The success of the nineteenth annual meeting of the American Association of Museums was due in considerable part to the hospitality of the Smithsonian Institution and the friendly help of many individuals on its staff.

At the close of the first National Conference on Outdoor Recreation, held in Washington in June, the following resolutions were passed:

Whereas the success of this first National Conference on Outdoor Recreation is due in large measure to the very fine services and facilities made available by the officers of the Smithsonian Institution and the National Museum, who have been untiring in their efforts to promote the comfort and convenience of the delegates to the conference: Therefore be it

*Resolved,* That the conference hereby expresses its sincere appreciation of the spirit of cordial hospitality displayed by the officers and employees of these great scientific and educational agencies and requests its executive chairman to so advise Dr. Charles D. Walcott, Secretary of the Smithsonian Institution, and his official associates.

The annual meeting of the National Academy of Sciences, which has for many years been held in the National Museum, was held this year for the first time in the academy's new building. The following resolution passed during the sessions expresses appreciation of the services which the Institution has been able to render to the academy in the past:

*Resolved,* That on the occasion of the removal of its offices from the Smithsonian Institution to its new building, the National Academy of Sciences gratefully expresses its obligations to the Secretary and the Board of Regents of the Smithsonian Institution for the courtesies extended for over half a century through the housing and care of the academy records and library, through its cooperation in the conduct of academy business, and through its effective aid in promoting the objects of the academy;

And that the academy expressly acknowledges its high esteem and thanks to the Secretary of the Smithsonian Institution, Charles Doolittle Walcott, for his personal interest in the welfare of the academy, his unfailing interest in and attention to the work of the academy in the advancement of science, and his distinguished services as treasurer, vice president, acting president, president, and member of the council and committees, both official and unofficial, in its behalf.

## PUBLICATIONS

There were issued during the year by the Institution and its branches a total of 70 volumes and pamphlets, of which 142,385 copies were distributed, including 407 volumes and separates of the Smithsonian Contributions to Knowledge, 25,937 volumes and separates of the Smithsonian Miscellaneous Collections, 19,085 volumes and separates of the Smithsonian Annual Reports, 3,743 Smithsonian special publications, 78,734 volumes and separates of the various series of the National Museum publications, 13,974 publications of the Bureau of American Ethnology, 78 publications of the National Gallery of Art, 65 volumes of the Annals of the Astrophysical Observatory, 35 reports on the Harriman Alaska Expedition, and 1,275 reports of the American Historical Association.

The publications of the Institution, now issued in 11 distinct series, are its principal means of carrying out a part of its stated purpose, "the diffusion of knowledge." There is a widespread and growing demand for its publications, not only from specialists for

the more technical series, but also from the general public, among whom the importance of scientific matters is coming to be more and more realized. This popular demand is chiefly for the Smithsonian Annual Reports, which contain a general appendix consisting of series of specially selected articles presenting in readable form progress and interesting developments in all branches of science. Unfortunately, owing to the rush of work at the Government Printing Office both during the war and since, these volumes have fallen behind date, until now they are issued over two years late. However, for the coming fiscal year, Congress has allotted an additional amount to enable the Institution to catch up with these reports by issuing two in one year, and it is hoped that within a year or two they will again appear more nearly on time.

The various publications of the National Museum and of the Bureau of American Ethnology are given in detail in the report on publications appended hereto.

In the series of Smithsonian Miscellaneous Collections 13 papers were issued during the year, among which may be mentioned two papers by your secretary on the results of his geological field work in the Canadian Rockies; an illustrated pamphlet on the History of Electric Light, by Henry Schroeder, of the General Electric Co.; a paper on the Telescoping of the Cetacean Skull, by Gerrit S. Miller, jr., of the National Museum; and a second paper by Dr. J. Walter Fewkes describing and figuring the beautiful designs on prehistoric Indian pottery from the Mimbres Valley, N. Mex.

*Allotments for printing.*—The congressional allotments for the printing of the Smithsonian reports and the various publications of the branches of the Institution were practically used up at the close of the year. The appropriation for the Institution and its branches for the coming year ending June 30, 1925, totals $90,000, allotted as follows:

| | |
|---|---|
| Annual Report of the Board of Regents of the Smithsonian Institution | $22,600 |
| National Museum | 37,500 |
| Bureau of American Ethnology | 21,000 |
| National Gallery of Art | 1,000 |
| International Exchanges | 200 |
| International Catalogue of Scientific Literature | 100 |
| National Zoological Park | 300 |
| Astrophysical Observatory | 300 |
| Annual Report of the American Historical Association | 7,000 |

*Committee on printing and publication.*—The Smithsonian advisory committee on printing and publication considers all manuscripts offered for publication by the Institution and its branches and makes recommendations thereon to your secretary. It also considers matters of publication policy and means of effecting econ-

omies in the Institution's printing and binding. During the year nine meetings were held and 100 manuscripts acted upon. The membership of the committee is as follows: Dr. Leonhard Stejneger, head curator of biology, National Museum, chairman; Dr. George P. Merrill, head curator of geology, National Museum; Dr. J. Walter Fewkes, chief, Bureau of American Ethnology; Mr. N. Hollister, superintendent, National Zoological Park; and Mr. W. P. True, editor of the Smithsonian Institution, secretary. Toward the close of the year there were added to the membership of the committee Dr. Marcus Benjamin, editor of the National Museum, and Mr. Stanley Searles, editor of the Bureau of American Ethnology.

### LIBRARY

The service of the libraries administered under the Smithsonian Institution has been continued, although with increasing difficulty owing to the need for more assistants. Mr. Paul Brockett resigned as assistant librarian, after 37 years with the Smithsonian Institution, in order to assume charge of the new building of the National Academy of Sciences as assistant secretary and librarian.

The additions to the libraries reached a total of 12,249, as compared with 10,938 the past year. The number of loans was 13,326, as compared with 12,076 the past year, exclusive of books lent from the Smithsonian deposit at the Library of Congress. Efforts to secure missing parts for including in incomplete sets resulted in the receipt of 1,786. Owing to the lack of sufficient clerical help, it has not been possible to have typed for the general library catalogue the catalogue cards of special collections that have been prepared during the year. Consequently the number of volumes catalogued for the general catalogue dropped from 6,341 to 5,348.

Probably the most important addition of the year was the Edgar E. Teller collection presented by Mrs. Teller to the library of the United States National Museum. The catalogue of the European Historical Series of the Watts de Peyster collection is approaching completion.

## NATIONAL MUSEUM

Since 1916 the collections in the care of the Museum have been increased by two and one-fourth million specimens, and its exhibition space has been enlarged by the addition of the Aircraft Building. Unfortunately, however, the appropriations have not kept pace with this rapid development, and it is now only with the greatest care and economy that the actual work of the safe-keeping of the collections and their classification and exhibition is carried on. There is practically nothing left to care for the normal expansion

of the Museum's work and for increasing its usefulness to the people of the country. The Museum, with its vast collections, serves the public not as it would and could but as its limited financial resources permit. One forward step has been made, however, in the reclassification of salaries which becomes effective on July 1, 1924, and as a whole the scientific force of the Museum is at last to receive adequate compensation.

The outstanding feature of the year was the gift to the Nation for exhibition in the National Museum of a complete American colonial room, presented by Mrs. Gertrude D. Ritter, of Washington, D. C. This notable gift includes wall paneling from the old Bliss homestead at Springfield, Mass., and a remarkable collection of furniture, china, glassware, pewter, pictures, and textiles belonging to the same period of early American history. The room is set up and arranged in one of the Museum rooms exactly as it would have appeared in a colonial home of the period of about 1750.

A program of intensive work on the development of the Loeb collection of chemical types was made possible this year through the accrued interest on the Loeb fund. A curator of the collection was appointed and the advisory committee reorganized, and it is expected that in a year or two the value of such a type series of chemicals will be amply shown.

The Museum received during the year 362,942 specimens, a notable increase over last year in numbers and also in scientific value. Over 8,000 duplicate specimens classified and labeled were distributed for educational purposes to schools and colleges. A somewhat detailed account of the accessions in the various departments of the Museum is given in the report of the administrative assistant in charge, and only a few of the more notable acquisitions will be mentioned here. In anthropology a noteworthy collection of ethnological material from the Philippines, made by the late Capt. E. Y. Miller, was presented by Mrs. Florence G. Miller, and a number of specimens representing several Indian tribes of South America was the gift of Dr. D. S. Bullock. A valuable series of unique ancient earthenware bowls from the Mimbres Valley, N. Mex., was presented by the Bureau of American Ethnology. A series of prehistoric antiquities from ancient sites in France, Belgium, and Germany was added by Dr. Aleš Hrdlička as the result of his recent trip to Europe.

The collections received in biology greatly surpass those of recent years both numerically and in scientific importance, the latter point being emphasized by the addition of a large number of species and genera new to the Museum, many gaps in the collections having been filled. The outstanding accession of the year is the gift by Dr.

J. M. Aldrich, associate curator of insects, of his collection of 45,000 specimens of dipterous flies, the result of his life's collecting and study. Considerable collections were received from Rev. D. C. Graham, made during his explorations in the Province of Szechwan, China. Dr. W. L. Abbott secured a large number of plants, reptiles, and amphibians during an expedition to Santo Domingo. The National Herbarium was greatly enriched by three expeditions to tropical America, that of Dr. A. S. Hitchcock to Panama, Ecuador, Peru, and Bolivia; of Paul C. Standley to the Canal Zone and Costa Rica; and of Dr. William R. Maxon to Panama, Costa Rica, and Nicaragua. The research work of the staff of the department of biology has been continued whenever time could be spared from the necessary work of caring for the increasing collections, but the divisions are greatly undermanned and much more scientific work would be accomplished if more assistants were available.

The department of geology received a large amount of material of unusual value for both exhibition and study purposes, the most noteworthy accessions being the large sauropodous dinosaur from the Dinosaur National Monument, Utah, and the Edgar E. Teller and George M. Austin collections of fossils, which together comprise at least 125,000 specimens. The economic collections have been increased by the addition of a number of ores and by a series of diamond-bearing rocks from Arkansas. Meteoric irons from New Mexico, Kansas, Chile, Spain, and Australia added new material to the meteorite collection. The mineral collections received a number of specimens chiefly through the generosity of Col. Washington A. Roebling, and several cut gems were added to the Isaac Lea collection. Expansion of the study series and research work occupied much of the time of the curators and their assistants.

The divisions of mineral and mechanical technology received many interesting additions, including two automobiles presented by the Cadillac Motor Co., one made in 1903 and the other in 1923, the latter being cut away in cross section to show the working parts. Another valuable accession was a complete working unit of a Strowger automatic telephone system equipped with three telephones which can be operated by the visitor, thus enabling him to observe the functioning of the apparatus. The division of textiles, including also wood technology, organic chemistry, foods, and medicine, received over 3,300 specimens during the year, including large series of industrial specimens illustrating every branch of rubber manufacture, the manufacture of leather and shoes, and the preparation and dyeing of seal, muskrat, and rabbit skins. There were also accessioned many chemical materials used in various industries, a number of interesting textiles, and material of value to be added

to the exhibitions in the division of medicine. The division of graphic arts received numerous additions pertaining to the history and development of the printing art and held a number of successful exhibitions of prints, etchings, lithographs, and photographs. In the division of history the most notable addition was the American colonial room presented by Mrs. Gertrude D. Ritter, mentioned previously in this summary. The division also received a gown worn by Mrs. Warren G. Harding and another worn by Mrs. Benjamin Harrison to be added to the collection of costumes of ladies of the White House in which so much popular interest is shown.

The Museum participated in a number of field expeditions which have resulted in greatly increasing the collections in the various departments. These are described in the report on the Museum appended hereto. The auditorium was used by a large number of scientific and other societies and organizations for lectures and meetings. Visitors to the Natural History Building during the year totaled 540,776; to the Arts and Industries Building, 290,012; to the Aircraft Building, 43,534; and to the Museum exhibits in the Smithsonian Building, 104,601. Eight volumes and 44 separates were published by the Museum during the year, and of these 78,734 copies were distributed.

## NATIONAL GALLERY OF ART

The year has witnessed substantial advance in the work of the gallery, and a number of important art works were received notwithstanding the fact that there is no longer suitable space available for the display of additional exhibits. Constant effort has been made during the year to impress upon the country the urgent need of a National Gallery Building, and gratifying assurance of the awakening of public interest in national art is given by the introduction in the Senate by Senator Lodge of an amendment to the deficiency appropriations bill to provide for commencing the erection of a suitable building for the gallery. Although this amendment did not pass at the last session of Congress, it is hoped that favorable action will soon be taken. It will be recalled from last year's report that Congress has provided a site in the Smithsonian grounds for such a building and that funds were raised privately for the preparation of plans. At the close of the year Mr. Charles A. Platt, the architect selected, had the plans well under way.

The annual meeting of the National Gallery Commission was held on December 11 and a number of important topics were considered, including the problem of securing a National Gallery Building, a recommendation that a division of historical architecture be included in the National Gallery of Art, and the selection of an architect for

the proposed building. Mr. Gari Melchers was selected to succeed Mr. Daniel C. French, who had resigned as chairman of the commission.

Permanent accessions to the gallery for the year were limited to about 10 paintings, but Mrs. Ralph Cross Johnson deposited a collection of 11 early Christian paintings by Italian, Dutch, Flemish, and Spanish masters, and has indicated her intention of making the "deposit" a permanent addition to the gallery. A number of loans were accepted during the year, and the gallery in turn loaned a number of paintings to accredited art institutions. Three special exhibitions were held in the gallery during the year, and the World War portrait collection was installed in an improvised gallery on the second floor of the Natural History Building of the National Museum, which proved to be quite satisfactory for their exhibition.

## FREER GALLERY OF ART

Work completed during the year includes the examination, classification, and cataloguing of Chinese and Japanese stone sculptures and paintings, and much additional work has been accomplished in the preservation, framing, lettering, and mounting of paintings, etchings, and lithographs. Identification photographs have been made of many objects in the collection to provide ready reference and to save handling of the collections. A special exhibition of Whistler etchings, dry points, and lithographs was held in four of the galleries during January and February. Fourteen hundred gallery books describing the objects on exhibition have been prepared, and there have also been issued a Synopsis of History for the use of students and a third printing of the pamphlet giving general information about the gallery and collections.

Additions to the collections by purchase included Chinese bronzes, Indian paintings, Persian paintings, and Chinese sculptures, and the library was increased by the addition of a number of books and pamphlets in various Asiatic and European languages. Several cases, picture frames, and other necessary articles of equipment were constructed in the gallery workshop.

The total attendance for the year was 111,942, including 482 visitors who came to work in the study rooms or to examine objects not on exhibition. The auditorium of the gallery was used in February by the Library of Congress for the presentation of three recitals of chamber music, and in April, Prof. Paul Pelliot, of the Collège de France, gave an illustrated lecture on "Chinese bronzes, jades, and sculptures."

The archeological expedition to China under the joint auspices of the gallery and the Museum of Fine Arts, Boston, has carried on

fruitful investigations in various localities in China, latterly at Yü-ho Chên, in Honan, where some burials of the Han dynasty have been thoroughly investigated with gratifying results. Even more important is the cooperative agreement with regard to archeological investigation established between the gallery and the Chinese authorities, which was confirmed by the unsolicited appointment of Mr. Bishop as Honorary Adviser in Archeology to the Historical Department of the Chinese Government. This is the first definite effort of the kind to bring Chinese archeologists and officials together in a beneficial relationship with western archeologists and museums, which it is hoped will provide a basis for more enlightened scholarship and gradually supplant the ruthless and unscientific collecting of Chinese antiquities on a commercial scale as hitherto allowed.

## BUREAU OF AMERICAN ETHNOLOGY

The aim of the Bureau of American Ethnology is to discover and disseminate correct ideas of the Indian as a race, that our people may better understand and appreciate his history, language, sociology, music, religion, and various arts and industries. The sources of this information are from year to year becoming fewer and fewer as the customs indigenous to America are lost in the settlement of the former homes of the Indians by the white race. It is therefore imperative that intensive work be carried on by the staff of the bureau to record accurately as much as possible of this material from the Indians themselves before it is too late.

The greatly increased number of visitors to the national parks and Indian reservations of the Western States, due to the present popularity of automobile touring, has led to a desire on the part of the general public for more information on the history and customs of the Indians, and urgent calls from universities and other institutions for advice and assistance in local problems relating to the Indians have been more numerous than ever before. The bureau's most effective means of supplying this information and answering these calls is its unique series of publications on every phase of Indian life and culture. With the greatly increased cost of printing and the very limited funds for the purpose placed at the disposal of the bureau, there has resulted a very unfortunate congestion of manuscripts awaiting publication. It is usually two or three years after a report is handed in by a member of the staff before it can even be sent to the printer, which not only results in difficulty in supplying the requests of the public but is very discouraging to the scientific staff who are carrying on this work.

A large proportion of the time of the chief of the bureau is devoted to administrative work, but opportunity was found to carry on

an archeological expedition to southwestern Florida, where but little work of this character has previously been done. With the aid of Mr. E. M. Elliott and his associates, of St. Petersburg, Doctor Fewkes began the excavation of certain large shell mounds on Weeden Island near St. Petersburg. One of the largest mounds proved to be a cemetery, and from November until March about one-half of it was excavated. A large collection of aboriginal objects and skeletons was made, which gives evidence of two distinct cultures, one above the other. The lower contained crude pottery and a few implements mostly of shell bearing considerable likeness to the so-called Archaic Antillean culture of Cuba. The upper layer gave very fine specimens of decorated pottery and other objects which show close relationship to the Indian culture of Georgia, indicating a southward extension of population possibly allied to the Muskhogean into the Florida Peninsula. This field work of the bureau in Florida inaugurates a plan of cooperation of members of the staff and others to determine the boundaries and extension of the great Muskhogean culture of the Gulf States, the object being to obtain information on the relationship of the mounds of our southern States to those of the Huastecs on the Gulf coast of Mexico.

Dr. John R. Swanton completed the translation of stories from his Koasati, Alabama, Hitchiti, and Creek texts; edited a manuscript on Indian trails by the late W. E. Myer; and began the preparation of a card index of all words in the Timucua language in the religious works of the Franciscan missionaries Pareja and Movilla, nearly all that is left to us of this old Florida tongue. Dr. Truman Michelson carried on ethnological studies among the Indians of Labrador. From his work it appears that the language of the Nascopi and Davis Inlet Indians is the same, and merely a Montagnais dialect rather than a distinct language. It may be noted that the folklore of the Indians of Labrador contains more elements occurring among Central Algonquians than has been suspected. At the close of this work, he continued his researches of former years among the Fox Indians at Tama, Iowa, devoting especial attention to the ceremonial runners of these Indians.

Mr. J. P. Harrington took charge of the exploration of the Burton Mound at Santa Barbara, Calif., under a joint arrangement with the Museum of the American Indian, Heye Foundation. Many facts of interest for the prehistory of the Santa Barbara Indians and the early culture of the Pacific coast in general were recorded, and a great number of skeletons, utensils, weapons, and trinkets were secured. Mr. J. N. B. Hewitt was engaged during the greater part of the year in working up the material gathered in former years relating to the League or Confederation of the Five Iroquois Tribes or Nations. In

June he visited the Six Nations of Iroquois near Brantford, Ontario, Canada, and the Onondaga, Tonowanda, and Tuscarora in New York State for the purpose of securing certain data regarding the Condolence and Installation Council.

Mr. Francis La Flesche devoted his time to the assembly of his notes on the child-naming rites and ceremonies of the Osage Indians. Mr. La Flesche has succeeded in securing two of the remaining versions of these rites which are now practically obsolete, and these will form the two parts of a publication on the subject, now nearing completion. Mr. W. E. Myer on his return from field work in Tennessee began preparation of a report on the remains of the great prehistoric Indian settlement known as Great Mound Group in Cheatham County, Tenn. The great central mound of this ancient town was protected by earthen breastworks surmounted at intervals by circular wooden towers, and completed by earthen bastions projecting 150 yards beyond the main walls. In addition to this fortified mound, there were four other eminences with tops leveled into plazas, which showed evidences of earth lodges and former buildings.

Miss Frances Densmore recorded songs of the Makah Indians at Neah Bay, Wash., in order to compare the music of Indians living beside the ocean with that of tribes living on the mountains, plains, and desert. It was found, as a general observation, that the music of the Makah resembles that of the Ute, Papago, and Yuma more than that of the Chippewa, Sioux, and Pawnee. The Makah songs recorded included songs of the whale legends and whaling expeditions, songs of the potlatch and various social dances, songs connected with contests of physical strength, "gratitude songs," lullabies, courting songs, and songs of wedding festivities.

The publications of the bureau issued during the year consisted of three bulletins, and a number of other bulletins and reports were in press at the close of the year. There were distributed during the year 13,974 copies of the publications of the bureau.

## INTERNATIONAL EXCHANGES

The total number of packages handled by the exchange service during the year was 460,658, weighing 567,107 pounds, an increase over last year of 82,832 packages and 74,291 pounds in weight. This increase was due for the most part to the large number of publications received in this country for transmission to universities and colleges in Japan that lost their libraries during the recent earthquake.

The Institution was notified during the year that the Government of Hungary had established the Hungarian Libraries Board at Budapest to act as the Hungarian exchange agency, and that the

Governments of the Dominican Republic, Latvia, and the Free City of Danzig had adhered to the two exchange conventions concluded at Brussels, March 15, 1886.

The number of full and partial sets of United States official documents sent through the exchange service to depositories abroad is now 97, there having been added during the year to receive full sets the Ministry of Finance, Government of Northern Ireland, Belfast; State Library, Reval, Esthonia; and the Library of the League of Nations, Geneva, Switzerland. In addition, there is an immediate exchange of the official journal between the United States and 41 foreign governments. During the year, this immediate exchange of the official journal has been entered into with Haiti, Latvia, and Norway.

## NATIONAL ZOOLOGICAL PARK

The year has been one of the most successful in the history of the park, both as to care and maintenance of the animal collections, buildings, and grounds, and in service to the public. All previous attendance records were broken by the total of 2,442,880 visitors recorded for the year. Among the 221 animals presented to the park during the year were many rare and unusual species, including a fine young Baird's tapir presented by Mr. M. G. Henery, of Honduras. This species of tapir has always been one of the rarest animals in zoological collections. Through the continued interest in the park of Mr. Victor J. Evans, of Washington, D. C., 55 animals were added to the collections including several very rare and valuable species. A most interesting collection from Brazil was brought to the park by Dr. W. L. Schurz, commercial attaché, United States Embassy, Rio de Janeiro, which included a fine South American bush dog, the first of its kind to be shown in the park.

There were 1,645 animals in the collection on June 30, 1924, including 458 mammals of 177 species, 1,059 birds of 276 species, and 128 reptiles of 41 species. The number of animals added during the year was 491, while 614 were lost through exchange, death, and return of animals on deposit. Forty-two mammals were born and 27 birds hatched in the park during the year, while the death rate was held at a normally low mark.

The 11 new yards for hoofed animals mentioned last year were completed during the year and occupied by animals in the fall. The superior arrangement of these paddocks for the care and exhibition of the animals has been favorably commented on by officials of other zoological gardens and by visitors. A new restaurant building, needed for many years, was completed during the year, which adds greatly to the appearance of the park and is much appreciated by

visitors. The most urgent present needs of the Park are a new exhibition building for birds, the present one being in very bad condition and much too small for the large crowds which visit it, and a fund for the purchase of rare and unusual animals. This fund might be increased by gift or bequest and by depositing in it certain miscellaneous revenues of the park which are now turned into the general fund of the Treasury, if this were authorized by an act of Congress.

## ASTROPHYSICAL OBSERVATORY

During the year arrangements were made, through the generosity of Mr. John A. Roebling, to have sent to the Institution daily telegraphic reports of the solar constant value from the two solar radiation stations at Montezuma, Chile, and Mount Harqua Hala, Ariz. Experimental temperature forecasts for New York City, based on these daily reports of solar changes, have been regularly submitted by Mr. H. H. Clayton for certain periods of time, namely, for 3, 4, 5, and 27 days in advance and also general forecasts as to the expected departure from mean normal temperatures for the coming months and weeks. These forecasts show undoubted prevision of the temperature even up to 5 days after the solar observations. The 27-day detailed forecasts have hitherto shown no correlation with New York City temperature, but the broader forecasts for coming weeks and months have been fairly verified. The results are promising enough to warrant further trial, and through Mr. Roebling's generous support these experimental forecasts will be continued until June 30, 1925.

Three projects were undertaken at the Mount Wilson station, which the director occupied from July to October, 1923: First, to begin observations on the variations of atmospheric ozone; second, to test new improvements on the solar cooker; and, third, to measure the spectra of the brighter stars, using the 100-inch telescope and special apparatus prepared for the work. In the first project apparatus was made ready, but circumstances prevented the actual beginning of the determinations of atmospheric ozone; in the second, experiments with the solar cooker resulted in some advancement and pointed the way to further progress; and in the third highly interesting results on stellar spectrum distribution and on star diameters were obtained.

## INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE

The condition of the International Catalogue of Scientific Literature remains practically the same as it was last year. It will be

recalled that publication of the catalogue was suspended in 1921, owing to the fact that such abnormal conditions in international exchange and publishing costs had been brought about by the war that many of the cooperating nations were unable to pay the consequent increased prices of their subscriptions. However, the need of this classified index to the ever-increasing literature of science is greater now than ever before, for no publication or combination of publications has even attempted to fill its place, and it is to be regretted that so much effort is being independently expended to meet special requirements when it is evident that, should these separate undertakings be either merged or at least brought into cooperation all would be benefited and the long-felt needs of specialists and librarians thus be fully met.

The International Catalogue is in a position, through its officially recognized bureaus, to prepare index data to all of the scientific publications of the world, this being a feature which no new organization can even hope to duplicate. The local bureaus, being officially recognized and in a position of close contact with both publishers and authors of scientific papers, have unique facilities for providing the data necessary for abstracts and special indexes, and as such data is needed by all agencies supplying notices of scientific publications in whatever form, it is felt that this organization should be the foundation on which to build a cooperative service to meet the needs of all interested in scientific activities.

## NECROLOGY

### JOHN L. BAER

Mr. John L. Baer, employed by the National Museum for several years past as temporary assistant in the department of anthropology, died in Panama on May 28, 1924. Mr. Baer was sent to represent the Smithsonian Institution on the Marsh Darien Expedition and his death occurred in Panama just before the return of this expedition.

### J. J. DOLAN

Mr. J. J. Dolan, employed by the National Museum in various capacities for 32 years, died on November 22, 1923. Mr. Dolan entered the service of the Museum as watchman and passed through the various grades until he reached the position of captain of the watch in 1903. This position he held until April 15, 1923, when he was transferred to the office of shipper, which position he held at the time of his death.

ELIZABETH D. TABLER

Miss Elizabeth D. Tabler, who had served in various offices in the National Museum for nearly 41 years, died on July 19, 1923. Miss Tabler came to the Museum in October, 1882, and served in the office of Mr. S. C. Brown, registrar, until his death in 1919, when she was transferred to the division of correspondence and documents, where she was employed at the time of her death.

Respectfully submitted.

CHARLES D. WALCOTT, *Secretary.*

# APPENDIX 1

## REPORT ON THE UNITED STATES NATIONAL MUSEUM

SIR: I have the honor to submit the following report on the condition and operation of the United States National Museum for the fiscal year ending June 30, 1924.

The maintenance of the National Museum for the year was provided for by a Government appropriation of $452,500 in the executive and independent offices act approved February 13, 1923, with an added item of $79,896 for increase of compensation to care for the bonus of the employees. In 1916 the appropriation to the Museum for all purposes was $426,000. Since 1916 the Museum has increased its exhibition space by the acquisition of the Aircraft Building; has materially enlarged the scope of its collections in arts and industries and in history, and has received over two and one-fourth million additional specimens, besides assuming certain definite responsibilities for the guarding and upkeep of the Freer Building. As can be readily seen, the difference in the appropriations of 1916 and 1924 hardly covers the added cost of maintaining the buildings and guarding the collections, leaving little or nothing to provide expert assistance needed in carrying out the fundamental requirement of the classification of the added collections. The growth of the Museum in all directions continues to be increasingly conditioned by its limited finances. Economies of all kinds are resorted to in making the appropriation provide first for the safe-keeping of the collections and then for their classification and exhibition. The Museum with its vast collections serves the public not as it would and could but as its limited financial resources permit.

During the year the scientific staff of the Museum was held intact with very few exceptions, doubtless due to the approaching readjustment under the classification act of 1923, which becomes effective July 1, 1924. As reported last year, tentative allocations of all positions in the Government bureaus under the Smithsonian Institution were submitted to the Personnel Classification Board by the writer as liaison officer of the Institution. The board this year reviewed, revised, and approved, with few exceptions, the allocations of the Museum employees. The few positions still awaiting the board's final approval will, it is expected, be settled within a few days. The results of the classification act are far-reaching. The scientific force

of the Museum is at last to receive adequate compensation, as a whole. There is, however, still one lot of scientific workers whose gradings must be revised to put them on an equality with similar employees elsewhere, but this will doubtless soon be satisfactorily adjusted.

The outstanding feature of this year was the addition to the Museum exhibition halls of an American colonial room, the gift of Mrs. Gertrude D. Ritter, as mentioned elsewhere in the report. This is the first period room to be permanently installed in the Museum. One of the foyer rooms in the Natural History Building has been entirely transformed and now preserves the home atmosphere of the early settlers of our country.

The time has come, with the continual stream of additions to the collections, when new objects can usually be displayed only by withdrawing from exhibition other objects, often of equal interest. The installation of the colonial room necessitated the condensation of the District of Columbia faunal exhibit.

The Museum was able by curtailing its archeological exhibition to materially assist the National Gallery of Art. The pressing needs of the gallery for additional hanging space led to the construction of a gallery 40 feet square in the west end of the east north range, second floor of the National History Building, to accommodate the nucleus of the National Portrait Gallery. This collection consists of the series of paintings especially made by American artists of persons prominently associated in the Versailles peace treaty—the group picture of the various delegates around the council table, and 22 individual portraits of the distinguished leaders of America and the allied nations. Designed especially for this collection, the gallery admirably fills its purpose.

A program of greater development for the Loeb collection of chemical types was made possible this year through the accrued interest on the Loeb fund, and includes the employment of a chemist to devote his entire time to its furtherance. The advisory committee on this collection was reorganized about the middle of the year to provide representation of the varied governmental agencies in Washington interested in chemistry. The committee is now constituted as follows:

Dr. J. E. Zanetti, chairman of the division of chemistry and chemical technology, National Research Council, ex officio; Dr. C. A. Browne, Chief of the Bureau of Chemistry, United States Department of Agriculture, ex officio; Dr. S. C. Lind, chief chemist of the Bureau of Mines, United States Department of the Interior, ex officio; Dr. W. F. Hillebrand, Chief of the Division of Chemistry, Bureau of Standards, United States Department of Commerce, ex officio; James K. Senior, representative of the committee in the

Middle West; Dr. C. L. Alsberg, representative of the committee on the Pacific coast; and F. L. Lewton, representative from the United States National Museum.

On the recommendation of the committee, O. E. Roberts, jr., was appointed curator of the Loeb collection of chemical types on April 1, 1924. Twenty-seven specimens were added to the collection during the year and several hundred are being prepared for presentation. It is expected that the intensive work of the next year or two will demonstrate the value of a type series of this kind.

The collections of the National Museum in the field of the arts and industries are more and more becoming recognized as a vast reference book of authentic information. Various governmental agencies rely upon the Museum's specimens for the identification and comparison of new material. Manufacturers are beginning to realize that the deposition of their products in the collections of the Museum acts as an additional protection against suits for infringement, and those who may have been accidentally granted a patent on an art that is not new. Several examples of the value of this protection have recently been brought to the attention of the Museum by patent examiners and attorneys for patentees. In one case a suit for infringement involving large damages was settled out of court upon the evidence of a Museum specimen. In two other cases the denial by the Patent Office of a patent on a product constructed upon what were claimed to be entirely new principles was found warranted after examinations of specimens in the National Museum. The old adage, "There is nothing new under the sun," is often shown to be true when an examination is made of the Museum's collections. That feature of the American patent system which denies a patent to an art or invention that has been shown to the public for two years or more increases the importance of a great collection illustrating industrial processes and products and makes it an important reference book to the United States Patent Office as well as to manufacturers, inventors, and the investing public. With the continued cooperation of American industries these collections will grow in importance and scope, enabling the National Museum to render more efficient service along these lines.

The Museum served also in the diffusion of knowledge by assisting the parent institution in its broadcasting program under Austin H. Clark, of the Museum staff, in whose charge the subject was placed by the secretary. Arrangements were made for broadcasting from Station WRC, Radio Corporation of America, a talk on the Smithsonian proper, historical in nature, and a series of supplementary talks on the various major divisions. Seven 15-minute talks were accordingly given by staff members, the first on October 19 and the last on November 16, 1923.

The conclusion was reached in the spring, as a result of careful study of radio programs, that the Institution and Station WRC could to their mutual advantage give a series of informative talks on special scientific topics. This led to the establishment of a regular Smithsonian period every Wednesday at 6.15 p. m. The Carnegie Institution of Washington and the various scientific bureaus of the Government whose work is more or less complementary to that of the Smithsonian cooperated in making possible so ambitious a project. The series was inaugurated on April 9 by a talk by Mr. Clark on "The giants in the animal world." This was followed by 10 others, equally instructive, the last on "Atmospheric electricity," by Dr. S. J. Mauchly, of the Carnegie Institution, given in cooperation with the Smithsonian on June 18, 1924. Altogether 18 items were broadcast by the Smithsonian Institution during the year, 18 different individuals participating, of whom 7 appeared under the auspices of or in cooperation with the Smithsonian and the remaining 11 as members of the staff, 7 being from the Museum. Those who participated in this program are few in number, however, as compared with those who contributed toward making it a success by furnishing information, suggestions, and encouragement. The series will, it is expected, be resumed in the early autumn.

Lack of space makes it necessary at times to refuse objects tendered for the collections, often where the Museum would like to encourage the intended donor to bring to the Museum not only his treasures but his problems also, for the Museum renders service in many ways. By its exhibition collections it conveys a message to those citizens from all parts of the land who visit their Capital; by its reserve series it affords assistance to workers in all lines here represented; by its system of distribution of duplicate specimens for educational purposes it aids the coming generation all over the land; by its correspondence it conveys desired information in response to specific inquiries in many lines; by its publications it extends the boundaries of learning; and now, by the radio its service in diffusing knowledge has been extended immeasurably.

## COLLECTIONS

The total numbers of specimens received by the Museum during the year was 362,942, exceeding numerically the receipts of the previous year by over 70 per cent. Not only in numbers is this year's increase notable, but in scientific value as well. The increment is particularly rich in type specimens and in other specially desired material, filling gaps and otherwise strengthening the collections in many lines. Additional material to the extent of 1,187

lots, chiefly geological, was received for special examination and report.

The distribution of duplicates for educational purposes, mainly to higher schools and colleges, aggregated 8,528 specimens, duly classified and labeled. Nearly 20,000 specimens and over 90 pounds of bulk material for blowpipe analyses were sent out, in exchange for which the Museum has received or will later receive desired material in many lines. Nearly 17,000 specimens and some 24 pounds of bulk material were lent to specialists elsewhere for examination and study.

A résumé of the principal acquisitions of the year follows.

*Anthropology.*—The department of anthropology reports a favorable year, marked by substantial increases in its collections.

In ethnology noteworthy accessions were received from the Philippines, collected by the late Capt. E. Y. Miller, consisting of rattan fire thongs, bamboo strike-a-lights, decorated gongs, and other articles, presented by Mrs. Florence G. Miller; and a considerable number of specimens from the Araucanian, Aymara, Lengua, and Chamacoco Indians of South America, gift of D. S. Bullock.

In American archeology is noted an especially valuable collection of 95 unique ancient earthenware bowls with figures of men and animals and of group compositions from Mimbres Valley, N. Mex., received from the Bureau of American Ethnology. The possibilities of these vessels in the application of decorative art by schools and manufacturers are great. The collection is also indebted to Victor J. Evans for the loan of 88 pieces of excellent Casas Grandes ancient pottery. In Old World archeology there was added a series of prehistoric antiquities from ancient sites in France, Belgium, and Germany, collected by Dr. Aleš Hrdlička during his recent trip to Europe. In physical anthropology the most notable receipt was a large number of skeletal remains from early historic Arikara Indian village sites near Mobridge, S. Dak., collected by M. W. Stirling. The collection of musical instruments received important additions given by Hugo Worch.

The work of the department in installing, rearranging, and preserving specimens was actively carried out. Miss Frances Densmore prepared a handbook on the collection of musical instruments and aided in rearranging the exhibit. Among the numerous contacts of the department with individuals seeking information the talks given to classes and groups are most valuable and interesting. Many such talks were given by members of the staff.

*Biology.*—The collections received by the department of biology during the year greatly surpass those of the years immediately preceding, not only numerically but equally so in scientific im-

portance. The latter point is emphasized by the addition of a large number of species and genera new to the Museum, many gaps having been filled and deficiencies supplied. This is particularly noticeable in the division of birds, where the generosity of Bradshaw H. Swales has made possible the acquisition of many forms hitherto unrepresented in its collections.

The most outstanding accession of the year is the donation by Dr. J. M. Aldrich, associate curator of insects, of his private collection of nearly 45,000 specimens of dipterous flies, representing 4,145 named species and many unnamed, with type material in 534 species, the fruit of a busy life of collecting and study of these insects by one of the leading specialists in this important order.

The activities so auspiciously begun in China, as noted in my previous report, were continued with gratifying results during the present year. I have to record with extreme regret the tragic death of Charles M. Hoy on September 6, 1923, at Kuling, China. It will be recollected that he was sent to China by Dr. W. L. Abbott for the purpose of making collections for the National Museum, and it was during the first trip that the Museum suffered the loss of this intrepid field naturalist. Rev. D. C. Graham continued his explorations in the western part of the Province of Szechwan. During the summer of 1923 he made an expedition to Mount Omei and Tatsienlu. The collections received contained a large number of topotypes of species previously described, in addition to many new ones, some of them from very high altitudes near the Tibetan border. The National Geographic Society's expedition under F. R. Wulsin during 1923 reached the famous Tibetan Lake Kokonor, but the collections, which are of considerable magnitude, have not been received as yet. Dr. W. L. Abbott during his expedition to the island of Santo Domingo during the early winter, though paying attention chiefly to the Samana region, secured a large number of plants, reptiles, and amphibians, but the great prize was a series of skins, skeletons, and embryos representing a genus of rodents which has not been found alive for nearly 100 years. Dr. Hugh M. Smith's activities in Siam, Dr. Casey A. Wood's visit to the Fiji Islands, Dr. T. D. A. Cockerell's expedition to eastern Siberia, and Secretary Charles D. Walcott's Canadian expedition also added materially to our collections. Dr. Paul Bartsch and Gerrit S. Miller, jr., brought back extensive collections from the Bahamas and the Lesser Antilles, respectively. The National Herbarium was greatly enriched by three major expeditions to tropical America, namely, Dr. A. S. Hitchcock's to Panama, Ecuador, Peru, and Bolivia; Paul C. Standley's to the Canal Zone and Costa Rica; and Dr. William R. Maxon's to Panama, Costa Rica, and Nicaragua.

The principal work of the taxidermists during the year has been the dismantling of one of the largest and oldest of the biological groups in the North American mammal hall, namely, that of the Rocky Mountain goats. The mounting of the animals for the new group, which have been collected for a number of seasons by Doctor and Mrs. Walcott during their explorations in the Canadian Rockies, has been practically finished and a fair beginning made on the rock work and other accessories. The arrangement, cataloguing, and installation of the large material received from collectors in the field has cost much time and labor, but good progress has been made and the condition of the study collections is considered very good.

As usual the Museum is under great obligations to a great number of scientific men connected with universities, museums, and other institutions all over the country and abroad, for working up such parts of the collections as are not represented by specialists on the staff of the National Museum. The research work of the members of the scientific staff has continued during such time as could be spared from the routine work, and some important memoirs have been concluded and published during the year, but the divisions are greatly undermanned, and more scientific work of a high order could be accomplished were more assistants available. With the increase in the number of accessions, the opportunity for research work becomes less.

Naturalists visiting Washington for the purpose of examining the collections have been given the widest and most liberal assistance in pursuing their studies, and loans of specimens to scientific institutions and individual investigators in this country and abroad have been made freely as heretofore. Zoological and botanical duplicates distributed to high schools, colleges, institutions, etc., aggregated 4,194 specimens, of which 2,086 consisted of mollusks in 14 prepared sets, and 800 fishes in 9 sets. Exchanges to the number of 14,526 were sent out, of which 2,737 were zoological.

The total number of specimens of animals and plants now in the collections is estimated at 7,206,816, of which 1,183,700 are plants.

*Geology.*—The year 1923–24 is notable chiefly on account of the unusual amount and value for both exhibition and study of the material received, a total of 227 geological accessions, aggregating 159,921 specimens, being recorded. The paleontological collections were the chief beneficiaries, the most noteworthy of the accessions being the large sauropodous dinosaur from the Dinosaur National Monument, Utah, and the Edgar E. Teller and George M. Austin collections of fossils, the last two named comprising at least 125,000 of the total number of specimens received.

The economic collections have been increased by Canadian nickel and silver ores acquired mainly through the interest of Honorary Curator Frank L. Hess, although an instructive series of copper-nickel-silver ores was donated by the Royal Ontario Museum of Mineralogy. A series of diamond-bearing rocks from the Arkansas fields, received through the assistance of H. D. Miser, made possible a more comprehensive exhibit of the occurrence of the diamond than was heretofore shown.

The continued activities of Victor C. Heikes have resulted in the acquisition of good exhibition material to both economic and mineral collections.

An unusual meteoric iron from San Juan County, N. Mex., formed the most interesting accession to the meteorite collection, although an iron from Chile, stone from Kansas, and small quantities of other individuals from Spain and Australia added new falls and finds. These were all acquired by exchanges.

The chief contributor to the mineral collections was Col. Washington A. Roebling, who supplied funds for the purchase of new minerals and made other gifts. Radium-bearing minerals from the Belgian Congo and a number of rare species new to the collections, received as gifts and exchanges, may also be noted. The mineral collection is reported as now 80 per cent complete in species.

A number of cut gems were added to the Isaac Lea collection through the Frances Lea Chamberlain fund.

A petrographic reference series of rocks, numbering some 2,000 specimens, and thought to be without doubt the most important collection, from a scientific standpoint, now in existence, was transferred by the United States Geological Survey.

In addition to the paleontological material mentioned above, collections of Cambrian, Ordovician and Silurian invertebrates were made by Secretary Walcott and members of the staff of the department, and a quantity of foreign material was acquired through gifts and exchanges. A slab of fossil footprints from the Triassic shales of Virginia, received through the courtesy of F. C. Littleton, was added to the exhibits.

Satisfactory progress was made in the care of the collections, though a few changes are to be noted in the exhibits, the installation of mastodon and bison skeletons, a large slab of rhinoceros bones, and the slab showing footprints of a dinosaur being the most important. Expansion of the study series has occupied much of the time of the curators and their assistants. Research work, however, has progressed to the usual extent and has been greatly facilitated by the acquisition of a binocular microscope which was presented to the department by John A. Roebling.

*Mineral technology and mechanical technology.*—These divisions are concerned with engineering developments generally and their industrial application. The collections endeavor to visualize by models and original objects the progress made in the mechanical and electrical fields, in mineral resource industries, and in transportation industries on land, water, and in the air. For some unexplained reason in past years these collections have been augmented spasmodically, all accessions recorded in any one year being concerned with a single one or two of the divisions' activities. This year, however, the accessions recorded, while but a little higher numerically, enhance the collections of every one of the branches in the divisions. Thus in mineral technology the glass industry exhibit was brought considerably closer to completion through the generosity of the Corning Glass Works. Two models of the most recent types of melting furnaces were presented as well as typical examples of chemical, industrial, and household oven glassware. The Cadillac Motor Co. presented one of the first automobiles made by that company in 1903 and also one of its cars made in 1923, the latter being sectioned, making visible car parts normally hidden from view.

The Automatic Electric Co. donated a complete working unit of the Strowger automatic telephone system. In this instance the exhibition case is equipped with three telephones which the visitor may operate and at the same time observe the functioning of the various parts. To the section of aeronautics there were added the Fokker *T–2* monoplane, which flew in May, 1923, from New York to San Francisco in a nonstop flight of less than 27 hours, and a helicopter type of airplane with which Emile Berliner and his son made successful flights at College Park, Md., in 1923. The water-craft collections were increased first by the addition of a model of the steamship *Leviathan*, transferred from the Alien Property Custodian, and second through the courtesy of the Canadian Pacific Railway Co., Montreal, Canada, in lending a model of the steamship *Empress of Russia*, one of the vessels of this company plying between Vancouver and the Orient.

As far as cooperative educational work is concerned, the lecture work of S. S. Wyer, associate in mineral technology, was of greatest importance. During the year he delivered 89 lectures on the subjects of fuel and power resources before many of the schools, normal schools, and colleges in Pennsylvania and before several educational groups outside of that State.

*Textiles, wood technology, organic chemistry, foods, and medicine.*—The collections under the supervision of the curator of textiles, which, besides textiles, embrace wood technology, foods, organic chemistry, and medicine, were increased by many gifts and by trans-

fer of property from other Government bureaus, amounting to over 3,300 objects. The most important of these may be mentioned briefly.

Several large series of industrial specimens illustrating every branch of rubber manufacture, the manufacture of leather and shoes, and the preparation and dyeing of seal, muskrat, and rabbit skins, were added to the collections, through cooperation with national trade associations. Exhibits were presented which show the manufacture and use of new materials from the field of industrial chemistry and include synthetic plastics and hot-molded and cold-molded compositions having high dielectric properties. These materials are used in the manufacture of electric equipment, automobile parts, musical instruments, etc. Other chemical exhibits received during the year include glues, coal-tar dyes, and artificial silk. The textile collections were increased by the gift of fibers, silk and cotton dress and drapery fabric, and a large series of hand-woven textiles; also hand looms and a commercial braiding machine. To the collections arranged to show the importance of wood and the industries based thereon were added products of the hardwood distillation industry, veneered doors, sporting goods made of wood, and paper-pulp products. The collections in the division of medicine were enlarged by 25 models showing advances in sanitary science, specimens of materia medica, and objects associated with the history of medicine in America.

*Graphic arts.*—The division of graphic arts held throughout the year successful temporary exhibitions of artistic prints, etchings, lithographs, and photographs, which were well attended and favorably mentioned in the press both here and abroad.

The two traveling exhibits of graphic arts were continually in demand, being displayed in 13 cities in 9 different States, and the fall and winter are already well dated up.

No entirely new and complete exhibit for the permanent collections was received, but important additions were made, especially to that of letterpress printing and to etching, the latter subject having been entirely rearranged with numerous additions, the most important of which was Miss Beatrice S. Levy's gift of three aquatint plates for her color print, White House by the Sea. This method is new to the technical series. The division now has all the regular methods of printing etchings in color.

Probably the most important accession received by the section of photography was the motion-picture camera invented by Wallace Goold Levison in 1887. This machine could expose 12 plates in rapid succession from one point. This is probably the first motion-picture camera ever made. Edward Muybridge did not have a motion-picture camera but had a row of separate cameras, each ex-

posed as the person or animal passed in front, by the breaking of a string.

*History.*—The most notable addition to the historical collection was a number of objects comprising the interior furnishings of an American colonial room, presented to the Museum by Mrs. Gertrude D. Ritter, of Washington, D. C. This collection includes wall paneling, furniture, chinaware, glassware, pewter ware, pictures, textiles, and miscellaneous objects. The wall paneling, made of American pine carved with plain designs and fastened with pegs, was taken intact from the old Bliss homestead located at Springfield, Mass., and includes a corner cupboard of three shelves with original glass doors and hinges and latches of wrought iron. In the cupboard and on the tables are shown the china, glass, and pewter ware belonging to the exhibit. The china includes an exceptionally beautiful bowl of Chinese Lowestoft and a child's tea set of the same ware, a helmet pitcher, and a number of pieces of luster ware of more than usual interest. The glassware includes several pieces of Stiegel ware, a number of plain glass mugs of antique design, a glass pitcher, and a number of glass bottles of rare types. The collection of pewter includes plates, mugs, coffee pots, pepper and salt shakers, dishes, sirup mug, and basin. This collection is unique in character and its presentation marks an epoch in the development of the collections of this type in the National Museum. It is the donor's intention to add to this collection until the furnishings of an entire colonial home have thus been assembled. These will be exhibited as a unit in a house of colonial style to be erected for the purpose in proximity to the present group of museum buildings.

To the collection of costumes of the ladies of the White House, which has for a number of years attracted so much public attention, were added two costumes of great interest. One of these is a white satin evening gown worn by Mrs. Warren G. Harding during the administration of her husband, President Warren G. Harding, 1921–1923, the gift of Mrs. Harding. The other is a gray silk dress worn by Mrs. Benjamin Harrison at the inaugural ball in 1889 on the occasion of the inauguration of her husband, President Benjamin Harrison, and donated by Mrs. James R. McKee, of New York City. Both these costumes were acquired by the Museum through the generous cooperation of Mrs. Rose G. Hoes.

The biographical collections were increased by the gift of a pair of silver-mounted flintlock pistols with leather holsters which were owned during the War of the Revolution by Maj. Gen. Charles Lee, of the Continental Army; a sword, a pair of pistols, and a pair of epaulets owned during the same period by Maj. Jacob Morris, and a number of other relics of less importance. These were presented to the Museum by Victor Morris through the Wisconsin Society of

the Colonial Dames of America. Three silver camp cups owned during the Revolution by Brig. Gen. Anthony Wayne were lent by Mrs. M. W. Stroud. A gold locket containing a lock of the hair of Napoleon I was presented by H. deB. Parsons, Miss Katharine deB. Parsons, and Livingston Parsons, of New York City. A very handsome gold snuffbox, the lid of which is set with diamonds, which was presented about 1836 to Col. René E. De Russy, United States Army, by the Prince de Joinville, was donated to the Museum by Mrs. Laura R. De Russy, of New York City. A silver tureen and platter presented to the Hon. James R. Mann, Republican leader, by Members of the United States House of Representatives, Sixty-fifth Congress, March 3, 1919, were donated by Mrs. Mann.

### EXPLORATIONS AND FIELD WORK

The Museum draws its increment in large measure from explorations and expeditions undertaken chiefly by other Government agencies and by private institutions and individuals. This year the Museum benefited from an unusual number of such enterprises. Biological and botanical explorations in North America, Central America, South America, Asia, and various islands added to the collections representing the fauna and flora of various countries, while geological field work was carried on within the borders of our own continent.

During the summer and early fall of 1923 Secretary Walcott, accompanied and aided by Mrs. Walcott, was engaged on geological exploration in the Canadian Rockies in continuation of the work of previous years. Special studies were made of the Mons formation of the Ozarkian system, 3,800 feet in thickness, which on the eastern side of the Columbia River Valley was found to contain four well-developed fossil faunas, indicating its position between the Upper Cambrian and Ordovician systems of the geologic time scale. Collections of fossils illustrating new horizons in the Ozarkian system were made in this area, also in the Upper Cambrian and Silurian limestone of this region, together with small lots of desirable biological and botanical material.

Biological explorations in China included the expedition of the National Geographic Society under Mr. Wulsin along the Yellow River to Lake Kokonor in Thibet and the field work of Mr. Graham in the Province of Szechwan, and of Mr. Hoy in Hunan, all before mentioned. Mr. Graham in his trip to Tatsienlu practically duplicated the route of A. E. Pratt, going by way of Mount Omei, securing topotype material of species based on Pratt's and Potanin's expeditions as well as undescribed material which had escaped his predecessors.

Arthur de C. Sowerby continued his collecting in China for the Museum, under the auspices of Col. Robert Sterling Clark, but on account of the disturbed conditions in that country he was unable to go far afield from his headquarters in Shanghai. The resulting valuable additions furnish serial material for comparison with collections from more remote regions.

An expedition to Japan and eastern Siberia undertaken by Prof. T. D. A. Cockerell at his own expense, primarily for the purpose of collecting and studying insects, was productive of large collections in that class with smaller lots in other natural history classes.

In Siam, Dr. Hugh M. Smith, who is engaged in fisheries investigations for the Government of Siam, collected in a number of localities birds, reptiles, amphibians, and invertebrates, important as linking up collections already in the Museum from the Malay Archipelago and Peninsula with those of the countries farther north.

In the Fiji Islands Dr. Casey A. Wood, a valued collaborator of the division of birds, enlisted the cooperation of several native collectors during a three months' visit, making very important additions of birds from that region, including many species hitherto unrepresented, a notable addition to the Fijian material from the United States exploring expedition under Captain Wilkes. Doctor Wood arranged with his local assistants to continue the work in localities he himself was unable to visit.

Under the auspices of the Bureau of Biological Survey, Department of Agriculture, in conjunction with the Navy Department, Dr. Alexander Wetmore visited Laysan, Midway, Johnson, Wake, and other islands in the Pacific and made large collections, part of which have already been transferred to the Museum.

Islands in the Atlantic were also visited. Dr. W. L. Abbott's expedition to Santo Domingo has already been mentioned, with its prized specimens of the long-lost rodent. In the Virgin Islands of the United States and the Lesser Antilles, Gerrit S. Miller, jr., curator of mammals, made extensive collections of animals and plants for the Museum at his own expense. Explorations in the Bahamas, Cuba, and the Florida Keys in August, 1923, and June, 1924, in connection with experiments in heredity which Dr. Paul Bartsch of the Museum staff is conducting under the joint auspices of the Carnegie Institution of Washington and the Smithsonian Institution, added to the Museum series of mollusks, birds and other natural history specimens from these regions. The United States Navy and the United States Army cooperated by furnishing transportation for the workers.

The expedition of A. H. Fisher to the lower Amazon River, Brazil, on which the Museum was represented by C. R. Aschemeier as

mentioned in the last report, was completed early in the year. The collections made in this region included a few species of mammals and birds new to the Museum.

Under an arrangement with R. O. Marsh, John L. Baer represented the Museum on the Marsh Darien expedition undertaken in the early part of 1924, for collecting anthropological material in a region poorly represented in the anthropological collections. As mentioned elsewhere, Mr. Baer died while on this trip and the collections have not as yet reached the Museum.

Botanical explorations in northern South America conducted under the auspices of the United States Department of Agriculture, the Gray Herbarium, and the New York Botanical Garden benefited the National Herbarium. Dr. A. S. Hitchcock, custodian of grasses, on this exploration spent four months in Ecuador, two months in Peru, six weeks in Bolivia, and a few days in Panama. Large collections were obtained, of which a set of approximately 1,700 specimens, exclusive of grasses, was deposited in the National Herbarium.

Two expeditions undertaken for the Bureau of Entomology of the United States Department of Agriculture by Dr. William M. Mann, assistant custodian of Hymenoptera in the Museum, resulted in collections of insects and also specimens in other classes. The first three months of the fiscal year were spent in Mexico collecting miscellaneous insects and four months in the spring of 1924 in Panama, Colombia, Guatemala, Costa Rica, and Honduras, collecting insects, especially ants.

Another very considerable miscellaneous collection from Guatemala, of which birds formed the conspicuous part, was obtained by Harry Malleis, who visited the Province of Petén for the Bureau of Biological Survey, primarily to obtain living specimens of the ocellated turkey for introduction into this country.

During the spring of 1923 Dr. H. G. Dyar, custodian of Lepidoptera, made a trip to Panama, financed by himself, in company with R. C. Shannon, of the Bureau of Entomology of the United States Department of Agriculture, whose expenses were paid by that bureau, resulting in many thousand insects, including extensive collections of mosquitoes, in which Doctor Dyar was specially interested. Dr. T. E. Snyder, of the Bureau of Entomology, also visited Panama, securing large collections of termites which will be added to the National material.

An expedition from the Department of Agriculture to Panama and Central America was accompanied by Dr. William R. Maxon, associate curator of plants, the field work in Panama, western Nicaragua, and Costa Rica resulting in 4,500 bontanical specimens. The Nicaraguan material will be especially useful in the preparation of the proposed flora of Central America.

The Panama Canal Zone and Costa Rica were visited also by Paul C. Standley, associate curator of plants, the expense of the explorations being borne in part by the Department of Agriculture and by Oakes Ames, who is especially interested in the orchids of Central America. During two months in the Canal Zone there were obtained about 7,000 numbers of plants particularly desired in preparing a popular flora of the zone, and 8,000 numbers, including a large percentage of orchids, were collected during 10 weeks in Costa Rica for use in preparing the flora of all Central America.

An expedition to the west coast of the United States under Dr. H. G. Dyar was in the field at the close of the year, studying larvæ of mosquitoes. This was financed by Doctor Dyar. Dr. J. M. Aldrich, associate curator of insects, was likewise at the close of the year collecting Diptera throughout the high altitudes of the West and on the west coast of the United States and Canada. All of this material will eventually find its way into the National collections.

During the summer of 1923 the National Geographic Society continued archeological explorations at the prehistoric Pueblo Bonito in New Mexico under Neil M. Judd of the Museum staff. The material results have not as yet been officially turned over to the Museum. This was the third season of explorations which are planned to extend over a period of five summers. Mr. Judd had just started the fourth season's work at the close of the fiscal year.

A second expedition under the same auspices, also directed by Mr. Judd, penetrated a previously unexplored section of southeastern Utah, bringing back objects from basket-maker and cliff-dweller habitations.

The expedition to the Dinosaur National Monument, Utah, undertaken by C. W. Gilmore, assisted by N. H. Boss, as mentioned in last year's report, was completed in the middle of the summer of 1923. This had for its object the procuring of one of the large dinosaurs for the exhibition collections. As noted under the chapter on accessions, sufficient material was acquired for a good skeletal mount of *Diplodocus*, exceeding in exhibition value anything acquired in the department of geology in recent years, together with a considerable quantity of miscellaneous fossils representative of the Morrison fauna.

The Great Basin ranges of Nevada and Utah were the subject of stratigraphic and paleontologic work by Dr. Charles E. Resser in furtherance of Doctor Walcott's monographic studies. Of the fossils collected many were from entirely new localities.

Field work by Dr. R. S. Bassler, curator of stratigraphic paleontology, during the year included four separate projects: (1) Field work in the Central Basin of Tennessee, in cooperation with the

State Geological Survey, which resulted in completing the mapping of the geology of the Hollow Springs quadrangle and in securing fossils from that area; (2) in southern Kentucky, at the instance of Dr. Frank Springer, in search of crinoids; (3) in the Niagaran Plain and neighboring area in Ohio, obtaining information as to the region from which the Austin collection was secured; and (4) in northern Tennessee, again under the geological survey of that State, mapping the geology and securing data toward a report on the stratigraphy of the State.

The Upper Cambrian and Ozarkian systems, particularly in Wisconsin, were the subject of the field work in the summer of 1923 of Dr. E. O. Ulrich, associate in paleontology.

The reported discovery of fossil footprints on excavations in the red Triassic shale near Aldie, Va., were investigated by C. W. Gilmore, and numerous dinosaurian footprints were observed at several distinct horizons. A fine slab of these was obtained.

Shorter collecting trips to the Miocene deposits along Chesapeake Bay by N. H. Boss and to near-by localities by E. V. Shannon and W. F. Foshag provided well-preserved cetacean remains from the former and small representative collections of rocks, minerals, and ores from the latter.

The quarries at Deer Isle and Auburn, Me., were inspected by Dr. George P. Merrill, head curator of geology, who also made a geological trip into the northern part of that State.

## BUILDINGS AND EQUIPMENT

For some years an additional building to house the National Gallery of Art and the history collections of the United States National Museum has been urgently needed. The removal of the art and history collections would release space in the older buildings that should provide for the growth of the other collections for years to come. The executive and independent offices act for 1924, approved February 13, 1923, authorizes the Regents of the Smithsonian Institution to prepare preliminary plans for a suitable fireproof building with granite fronts for the National Gallery of Art (including the National Portrait Gallery) and for the history collections of the United States National Museum, to be erected when funds from gifts or bequests are in the possession of the regents. A site for the building is designated in the Mall immediately east of the Natural History Building.

The National Gallery of Art Commission, which has for some time been giving consideration to the adequate housing of the art collections, decided at a meeting on December 11, 1923, to raise by private

subscription $10,000 toward preliminary plans for this art and history building, and that amount was soon subscribed. The Board of Regents of the Institution accordingly on February 14, 1924, selected Charles A. Platt, of New York City, on the recommendation of the commission, as the architect to prepare preliminary plans for the proposed building. It will be recalled that Mr. Platt was the architect of the Freer Gallery of Art. Senator Henry Cabot Lodge proposed an amendment to the second deficiency bill on April 17, 1924, appropriating $2,500,000 to begin construction of a building the total cost of which should be $7,000,000, but this failed to be enacted into law. It is to be hoped that favorable action will be taken in the next session of Congress.

The various buildings housing Museum collections have by the exercise of the strictest economy been maintained in good condition. The usual repairs were made to walls, ceilings, and roofs, and to portions of the roadway on the east of the Natural History Building. The café in the Arts and Industries Building was closed for the last two weeks in May and given a needed thorough renovation. Other changes in the same building afforded better accommodations for checking umbrellas, for the public-telephone booth, and for the watch service, and better illumination under the galleries.

The heating season was two weeks longer than the preceding one, consuming 3,267.2 tons of bituminous coal and 15.8 tons of stove coal, the former at an average cost of $7.79 per ton against $9.06 the preceding year. Minor repairs of the power plant and adjustments permitted the buildings to be more satisfactorily heated than in previous years. The electric generating equipment for the first time since the installation of the power plant has carried a load approximating its maximum capacity, due to natural increase in demand for current, as well as the addition of the Freer Building. The electric feeder leading into the Natural History Building from the Government contractor's line in B Street was enlarged to care for this increased load.

The ice plant produced 301.1 tons of ice, at a cost of $3.003 per ton, exclusive of labor. During the summer of 1923 it was unable to produce sufficient ice to meet the demands of all the buildings in the Smithsonian group. Repairs and renovation in the spring of 1924 made its output meet the demand to the close of the fiscal year.

The Museum fire-fighting equipment was given its customary regular inspections and tests, and it is expected that all deficiencies will be remedied shortly. Congress has provided for additional fire protection for the Smithsonian and National Museum Buildings by an item in the executive and independent offices act approved June

7, 1924, and arrangements have been made with the Commissioners of the District of Columbia for the installation in the Smithsonian Park of additional modern fire hydrants.

The Museum, in connection with the transfer of the Government collection of coins and medals from the Philadelphia Mint, acquired the exhibition cases in which the collection had been displayed. The cases were built to fit a special octagonal room in the Philadelphia Mint. They consisted of four wall cases, of three sections each, built to fit the angular spaces, and a central case—a double-faced polygon of 14 units, access to the interior fronts of which is through the space which would have formed a fifteenth unit had the polygonal construction been completed. By shifting the historical collection, the west north range of the Arts and Industries Building was assigned to the collection from the mint, together with other similar material already in the custody of the Museum. The dismantling of the highly finished, many angled cases in Philadelphia and their reerection here reflect great credit upon the Museum cabinetmakers and their associates in the undertaking.

There were constructed in the Museum workshops also 13 exhibition cases and bases and 119 pieces of storage and laboratory furniture. In addition 10 items of storage, laboratory, office, and other furniture were procured by contract.

### MEETINGS AND RECEPTIONS

The National Museum is prevented by its limited maintenance funds from providing public lectures, as it would like to do, on the many subjects in which it is interested. It is always ready, however, to assist as far as possible other governmental, scientific, and local organizations which so disseminate knowledge.

The auditorium and council rooms served for 105 meetings during the year, all of which were as usual open to the public. These gatherings included the National Conference on Outdoor Recreation called by President Coolidge, which met in the Museum from May 22 to 24; the nineteenth annual meeting of the American Association of Museums, May 10 to 13; the twenty-third annual convention of the National Association of Postmasters, October 10–12; one session on September 3 of the twenty-fourth annual convention of the United National Association of Post Office clerks; the meeting of the Northern Nut Growers Association, September 26–28; the meeting of adjutants general of the National Guard of each State, under the auspices of the Militia Bureau, War Department; two motion-picture exhibitions by the Public Health Service; a three-day plant quarantine conference of State and Federal representatives and an all-day conference on the Japanese beetle and the

Almeria grape, both under the Federal Horticultural Board; a conference on conservation of the prong-horned antelope, under the Biological Survey; two meetings with addresses before employees of the Forest Service; a motion-picture exhibition by the Department of Agriculture, and a lecture by the Secretary of Agriculture before the American Committee on the International Institute of Agriculture; one session of the National Conference on Vocational Rehabilitation of Civilian Disabled, under the Federal Board of Vocational Education; a series of health lectures by eminent physicians arranged by The Woman's Welfare Association on alternate Sunday afternoons from January 13 to April 27, inclusive; the celebration by the Shakespeare Society of Washington of the tercentenary (1623–1923) of the publication of the first folio of Shakespearean plays on November 7 and 8, and a benefit for the National Monticello Association by the same society on December 12; the fifth annual meeting of the American Classical League; a series of lectures for Boy Scouts and Girl Scouts; the regular meetings of the 1923–24 season of the Anthropological Society of Washington, the Entomological Society of Washington, the American Horticultural Society, and the Washington (D. C.) Chapter of the Wild Flower Preservation Society of America; two meetings by the Audubon Society of the District of Columbia; and single meetings under the auspices of the Washington Society of Engineers, the Writers' League of Washington, the Southern Maryland Immigration Commission for the purpose of organizing a garden home association, the Potomac Garden Club, the Light Bearers of Washington, the Puerto Rico Society of Washington, Federal Post No. 824 of the Veterans of Foreign Wars of the United States, the Federal Photographic Society, and the Smithsonian Relief Association.

The exhibition halls were opened for four evening receptions. On November 13 a reception was tendered to the delegates and friends of the Southern Medical Association, then holding its seventeenth annual meeting in Washington. On January 22 the Archaeological Society of Washington, affiliated with the Archaeological Institute of America, arranged for a reception in the space assigned the National Gallery or Art, immediately following a lecture in the auditorium by Count Byron Kuhn de Prorok on "Excavations in Carthage." On April 22 the regents gave a reception to the members and friends of the American Chemical Society, as a part of their spring meeting in Washington, April 21–25, which was unusually well attended. On May 22 the first floor and the foyer rooms on the ground floor were thrown open for the reception to the delegates to the National Conference on Outdoor Recreation.

MISCELLANEOUS

The number of visitors to the Natural History Building during the year aggregated 540,776; to the Arts and Industries Building, 290,012; to the Aircraft Building, 43,534; and to the Museum exhibition halls in the Smithsonian Building, 104,601.

As a mark of respect to President Warren G. Harding, all the exhibition halls, as well as the offices, were closed at noon, August 3, 1923, for the balance of that day, and again from 1 p. m. on August 7 until after the funeral at Marion, Ohio, on August 10. Visitors were also denied entrance to the Aircraft Building from January 11, 1924, to February 4, to permit of the installation of the Fokker airplane *T–2*.

The Museum published 8 volumes and 44 separate papers during the year. A publication in the bulletin series of several years ago, "The Mineral Industries of the United States—Manufactured Gas in the Home," was reprinted for a second time through the financial assistance of the author, Samuel S. Wyer. Museum publications to the number of 78,734 copies were distributed by the Museum to libraries and individuals on the regular mailing lists and in response to special requests. The distribution exceeds the number of copies printed during the year by nearly 1,000. Some 250,000 labels, representing nearly 1,100 forms, were also printed, and 163 books were bound for the library.

The Museum is more and more dependent upon donations and exchanges in building up its library, since the number of books it can purchase with its small book appropriation is constantly dwindling.

Books are very necessary tools in the classification as required by law of objects intrusted to its custody. The additions to the Museum library this year comprised 1,521 volumes and 2,667 pamphlets, making a total of 164,748 titles in the library. The number of loans made was 10,577, of which 6,139 went to the sectional libraries of the Museum.

Three members of the staff left the Museum through the operation of the retirement act: W. I. Adams, disbursing agent for nearly 20 years, with service in another bureau of the institution aggregating 28 years in all; Joseph Horan, sergeant of watch, with a service of 42 years; and A. F. Adams, classifier in the library, whose retirement, granted in October, 1923, was effective from June 2, 1921, with a service of 39 years.

The necrology for the year included Miss E. D. Tabler, clerk for nearly 41 years; J. J. Dolan, who served in various capacities for 32 years; George W. Spier, honorary custodian of watches; John L. Baer, Museum representative on the Marsh Darien expedition; and

Charles M. Hoy, a field naturalist collecting in China for the Museum through the generosity of Dr. W. L. Abbott. The Museum also lost by death a number of its long-time benefactors, including Rev. Alfred Duane Pell and Ralph Cross Johnson.

Respectfully submitted.

W. DE C. RAVENEL,
*Administrative Assistant to the Secretary,*
*In charge United States National Museum.*

DR. CHARLES D. WALCOTT,
*Secretary, Smithsonian Institution.*

# APPENDIX 2

## REPORT ON THE NATIONAL GALLERY OF ART

SIR: I have the honor to submit the following report on the affairs of the National Gallery of Art for the year ending June 30, 1924:

The fourth year of the existence of the National Gallery as a separate administrative unit of the Smithsonian Institution has witnessed substantial advance in directions corresponding closely with those of preceding years, although its activities have been restricted by the lack of funds for the purchase of works of art, for travel and for active promotion. The staff, limited to two members, has been occupied largely in the current work of the gallery, with receiving, recording, cataloguing and installing collections, permanent and temporary. A number of important works were received during the year notwithstanding the fact that the gallery is without suitable space for the display of additional exhibits. The discouragement due to the shortage of gallery accommodations is, however, greatly lessened by the well-grounded expectation that additions of great importance await only the fulfilling of stipulated conditions and by the further reasonable expectation that when the contemplated gallery building is completed progress will be greatly accelerated.

During the year constant effort has been made to impress upon the country the urgent need of a national gallery building, without which little progress can be made. A majority of the art works now owned by the Nation have been acquired simply because there happened to be available gallery space in the Natural History Museum in which collectors could see their treasures properly installed. Although Congress, in 1921, set aside an appropriate site for a gallery building, it was left to the Institution to obtain the funds necessary for the employment of an architect to prepare the plans and for the erection of the building. As the result of an appeal for the former purpose $11,000 was raised and Mr. Charles A. Platt was engaged on the plans, this work being under way at the close of the year. It is feared, however, that funds for the erection of the building can not be obtained in this way, since the people incline to the view that the Nation should provide a building required for purely national purposes.

It is anticipated that Congress will in the near future come to feel the urgent need of a home for the valuable works of art that patriotic citizens have contributed to the Nation and for the still richer contributions that may be confidently expected when a gallery building worthy of the Nation is provided. The need of an additional building in the Smithsonian group is strongly emphasized by the fact that this building when completed will be called upon to accommodate not only the arts of painting, sculpture, architecture, and all the other arts in which the esthetic is a dominant feature but the extensive collections of the department of American history which now encroach so lamentably on the space rightfully claimed by the scientific departments of geology, anthropology, archeology, and natural history.

The recent introduction in the United States Senate by Senator Lodge of an amendment to the deficiency appropriations bill providing for a gallery building gives gratifying assurance of the awakening of public interest in national art. The amendment offered is as follows:

To enable the Regents of the Smithsonian Institution to commence the erection of a suitable fireproof building with granite fronts for the National Gallery of Art, including the National Portrait Gallery and the history collections of the United States National Museum, on the north side of the Mall between the Natural History Building and Seventh Street, $2,500,000: *Provided*, That the total cost of said building complete, including heating and ventilation apparatus and elevators, shall not exceed $7,000,000.

Among the agencies engaged in promoting the gallery's interests the American Federation of Arts has taken a leading place. The task of arousing the people to a realization of the backwardness of the art side of American culture development is intrusted to the 360 chapters of the Federation distributed widely throughout the States. In like manner illustrated lectures have been widely presented, two sets of colored lantern slides illustrating the gallery collections being in extended use, one under the auspices of the Federation of Arts and the other of the Federation of Women's Clubs. Radio broadcasting has also been utilized with good effect.

## NATIONAL GALLERY COMMISSION

The third annual meeting of the National Gallery Commission was held in the regents' room of the Smithsonian Institution, December 11, 1923, the following members being present: Herbert Adams, W. K. Bixby, Joseph H. Gest, John E. Lodge, Gari Melchers, Charles Moore, James Parmelee, Charles D. Walcott, and William H. Holmes.

The secretary of the commission presented a report on the activities of the gallery for the year and reports of the standing and special committees followed.

A number of important topics presented for consideration by the commission were gone over in all necessary detail. It was stated by the secretary that the war portrait collection, after two years' circulation by the American Federation of Arts, had been returned to the gallery and placed on exhibition in association with the World War exhibits.

The committee appointed by the commission in 1922 to advise with the committee on the purchase of works from the Ranger fund, Messrs. Redfield, Melchers, and Holmes, made no report, but it was announced that during the year 11 purchases were made from this fund none of which, however, were assigned to the National Gallery.

Attention was given to the resolution submitted by the regents, February 8, 1923, requesting consideration of the suggestion of certain architects that a museum of architecture be founded in connection with the Institution. After discussion, the following resolution was adopted:

*Resolved,* That the Commission of the National Gallery of Art recommend to the Regents of the Smithsonian Institution the inclusion of a division of historical architecture in the National Gallery of Art. The division should seek to establish standards in architecture, furniture, and landscape architecture for the benefit of students and others interested in the preservation of the historic buildings of America.

Extended consideration was given to the important problem of a national gallery building, as to its character as the prospective joint home of national art and national history, and as to the raising of funds for the construction of a building worthy of its purpose and of the American Nation. The various agencies that might be enlisted in the work were reviewed, and the impression prevailed that obtaining funds for the purpose by subscription was not within the range of feasibility. The possible adaptation of the George Washington Memorial Building, now in course of construction, to the purposes of art and history was suggested.

It was agreed that the first and essential step was the preparation of plans for the proposed structure, and the raising of a fund for the purpose was considered. Discussion led to the announcement by a member of the commission that he would be responsible for one half of the amount required when the other half is raised. Another member indicated that he would gladly help, and a committee of three—Mr. Parmelee, Mr. Moore, and Mr. Walcott—was appointed to take charge of the task of completing the fund.

The election of officers and members of the commission and members of the committees followed. The resignation of Mr. Daniel C. French as a member of the commission was announced, and Mr. Gari Melchers was selected to succeed him as chairman of the commission. Owing to the nonacceptance of election to membership on the commission of Mr. Denman Ross, Mr. James E. Fraser was elected to fill his place, and owing to a wrong understanding of the resignation of Mr. French, which was intended merely as resignation as chairman of the commission and not from membership in the commission, Mr. Joseph E. Breck was selected to fill the supposed vacancy. Mr. Breck, however, declined the appointment, making possible the restoration of Mr. French to the commission from which his resignation had been accepted under a misapprehension.

A special meeting of the gallery commission was held in the Regents' room of the Institution February 11, 1924, to consider the report of the committee appointed at the December 11 meeting of the commission to complete the raising of the $10,000 fund estimated as required for the preparation of preliminary plans for a national gallery building. Six members of the commission were present—Gari Melchers, James Parmelee, Herbert Adams, Charles Moore, Charles D. Walcott, and W. H. Holmes. The funds committee of three, Messrs. Parmelee, Moore, and Walcott, reported that $11,000 had been subscribed. The commission then proceeded to consider the question of the character of the proposed building, after which, complying with the request of the Board of Regents of the Institution, a vote was taken on the selection of an architect to prepare plans. The vote of members present, supplemented later by votes of those not present at the meeting, resulted in the naming of Charles A. Platt.

The advisory committee on acceptance of works of art met on December 15, 1923, and the following works, received subsequently to the previous annual meeting but in large part listed in the annual report for 1923, were favorably considered: Twenty-two paintings in pastel, comprising 71 portraits of survivors of the Civil War, Federal and Confederate, 50 years after the Battle of Appomattox, painted by Walter Beck; gift of the artist. Thirteen portraits painted by eminent American artists and representing distinguished leaders of American and allied nations in the war with Germany; presented by the national art committee. Bust in bronze of Jeanne d'Arc, by Madame Berthe Girardet; presented to the American Nation by the artist, through Mrs. John Jacob Hoff, in these words: "To the American people in memory of what our soldier boys have

done in France at a crucial time of need"; acceptance by the Smithsonian Institution was approved by the committee. Mantel of carved white holly, with fireplace of pink Numidian marble, from the recently demolished residence of the late Benjamin H. Warder, 1515 K Street NW., Washington, D. C., Henry Hobson Richardson, architect; gift of William W. W. Parker. Four paintings, The Storm, by Ludolf Backhuysen; seated figure of a Turk, by Eugene Delacroix; portrait of John Head, by Gilbert Stuart; and the portrait of A Lady, by Gilbert Stuart; bequest of George H. Story. The Philistines Attacked with the Plague, by Nicolas Poussin—sketch for the large painting in the Louvre, Paris; gift of W. H. Holmes. Two paintings by Sarah Paxton Ball Dodson, Wild Parsley and Une Martyre; gift of Richard Ball Dodson.

### ART WORKS ADDED DURING THE YEAR

The permanent accessions for the year are limited in number and are as follows:

Four paintings, the bequest of George H. Story: Portrait of A Lady and portrait of John Head, by Gilbert Stuart; panel by Eugene Delacroix; The Storm, by Ludwig (Ludolf) Backhuysen.

Two paintings by Sarah Paxton Ball Dodson (1847–1906): Wild Parsley, painted at Belvedere, Brighton, England, being a study for the foreground of The Annunciation, a painting now in the Pennsylvania Academy of Fine Arts, Philadelphia; and Une Martyre (Saint Thecla), exhibited in the Paris and Munich Salons of 1891. Gift of Richard Ball Dodson, Esq., Brighton, England.

Portrait in pastel by Walter Beck of the naturalist, John Burroughs, painted at Woodchuck Lodge, Delaware County, N. Y., in 1912. Gift of "an admirer of John Burroughs."

L'Empereur, a large canvas by J. Carroll Beckwith (1852–1917), representing the bronze statue of Napoleon projected against a brilliant sunset, received at the gallery as a loan from the artist in 1913. Presented by Mrs. J. Carroll Beckwith in 1924.

The First Gun at Fort Sumter, by Alban Jasper Conant (1821–1915), a large canvas in which the portrait of Maj. Robert Anderson, United States Army, standing, is projected against a great gun in action. Major Anderson was in command at Fort Sumter upon its surrender in 1861 and was one of the founders of the United States Soldiers' Home, Washington, D. C. Gift of the Hon. Larz Anderson "in anticipation of the day when there shall be a national portrait gallery."

The Philistines Attacked with the Plague, by Nicolas Poussin—sketch for the large painting in the Louvre, Paris. Gift of W. H. Holmes.

LOANS ACCEPTED BY THE GALLERY

Mrs. Ralph Cross Johnson deposited a collection of 11 early Christian paintings, referred to as "primitives," by Italian, Dutch, Flemish, and Spanish masters, and indicates her intention to make the "deposit" a permanent addition to the gallery. The list follows:

M. Albertinelli (1474–1515): Holy Family and St. John.
Bonifazio of Venice (1491–1553): Christ Addressing the People.
Giorgione (1477–1510), attributed to: Head of Christ.
B. van Orley (1509–1542): Adoration of the Kings.
Josef de Ribera (1588–1656): Judas (head).
G. B. Tiepolo (1696–1770): Baptism of Christ; Christ in the Temple.
Rogier Van der Weyden (1399–1464): The Entombment.
Leonardo da Vinci (1452–1519), attributed to: Head (old man).
Artist undetermined: Head of young woman.
Artist undetermined, Old Flemish: Virgin and Child (with apple).

Mrs. Ralph Cross Johnson has intrusted to the gallery for temporary care and display the following valuable works:

Sir William Beechey (1753–1839): Portrait of the Duke of Sussex.
Sir Augustus W. Callcott (1779–1844): St. Paul's and Black Friar's Bridge.
John Constable (1776–1837): Large landscape, Dedham Vale; small landscape, Heavy Clouds.
William Dobson (1610–1646): Portrait of the poet Waller.
C. Janssens van Ceulen (died between 1662–1664): Portrait of Henry, Prince of Wales (or Prince Charles)?
J. Jordaens (1593–1678): Portrait of Rubens' wife.
Sir Thomas Lawrence (1769–1830): Self portrait.
Jan Molenaer (16—?–1685): Festive scene.
Sir Henry Raeburn (1756–1792): Portrait of a man.
Sir Joshua Reynolds (1723–1792): Portrait of Richard Brinsley Sheridan; portrait of Lord Lifford; portrait of Mrs. Lloyd; portrait of Lord Roth.
David Roberts (1796–1864): Interior of New College, Oxford.
William Clarkson Stanfield (1793–1867): Marine, Approaching Storm.
Jakob van Strij (1756–1815): Dutch landscape, with figures.
Richard Wilson (1714–1782): Italian landscape; landscape; landscape.
Undetermined artist: Portrait of Mr. Ralph Cross Johnson.

Mrs. Marshall Langhorne, daughter of the late Ralph Cross Johnson and Mrs. Johnson, has intrusted to the gallery for temporary care and display the following valuable works:

John Constable (1776–1837): Landscape.
Thomas Gainsborough (1727–1788): Landscape; small landscape.
F. Guardi (1712–1793): Scene in Venice.

John Hoppner (1758–1810) : Portrait of an Irish gentleman.
Sir Godfrey Kneller (1646–1723) : Portrait of a gentleman.
Sir Peter Lely (1618–1680) : Portrait of the Viscountess Hatton.
P. Moreelse (1571–1638) : Portrait of Judith van Volbergen.
Sir Henry Raeburn (1756–1823) : Portrait of a boy.
Jan Steen (1626–1679) : The Doctor's Visit.
Richard Wilson (1714–1782) : Landscape.

Two paintings from the bequest of Mrs. Cassie Mason Myers Julian-James to the United States National Museum: Rustic Dance, by Jean Antoine Watteau; and a Study for the Head of a Large Picture, by Van Dyck. Lent by the Museum.

Portrait of President Warren G. Harding, by E. Hodgson Smart. Lent by the artist.

Three paintings, lent by Mrs. John Biddle Porter, of Washington, D. C., which formerly belonged to her grandfather, the Hon. Richard Rush, Regent of the Smithsonian Institution, 1846–1859: Mrs. Siddons in the Tragic Muse (copy by Rembrandt Peale of Sir Joshua Reynolds' celebrated painting in the Huntington collection; Milton Dictating to his Daughter (Copy by Rembrandt Peale); portrait of Hon. Richard Rush (copy of the painting by Healy).

Portrait of Associate Justice Pierce Butler, of the United States Supreme Court, by Nicholas Richard Brewer. Lent by the artist and withdrawn before the close of the year.

Miss Annie A. Wells, of Washington, D. C., has lent two medieval paintings (small panels).

Portrait of Capt. John Lawson at the age of 5, by Sir Joshua Reynolds, and portrait of Benjamin Franklin, engraved by F. Janinet, 1789. Lent by Mrs. Robert J. Walker, through Mrs. Henry T. Bull, Fort Riley, Kans.

Portrait of Chief Justice Joseph C. Hornblower and portrait of Mary B., his wife, by artist unknown; portrait of Roderick Austin, attributed to Sir Godfrey Kneller; and painting representing a sacrifice interrupted by soldiers, artist unknown. Lent by Mrs. Caroline B. Hornblower, Washington, D. C.

Portraits by Gilbert Stuart, of Benjamin and Sarah Tappan, owned by Margaret and Anna Hulett. Lent by Mr. H. K. Bush-Brown, Washington, D. C.

Portrait of the Hon. James R. Mann (1856–1922), late Member of Congress, by Gari Melchers, N. A. Lent by Mrs. James R. Mann.

### LOANS BY THE GALLERY

Two paintings, Portrait of a Lady, by Andres Zorn, and the portrait of Henry Fuller, 1873, by George Fuller, were lent to the Dallas Art Association, Dallas, Tex., for its fourth annual exhibi-

tion, held November 14–28, 1923. These works have been returned to the gallery. The exhibition was international in character, and a distinguished collection was secured for display.

The Happy Mother, by Max Bohm, was exhibited at the Art Center, Washington, D. C., on the occasion of a memorial meeting to the artist, October 20–21, 1923. Mr. Bohm died on September 23, 1923, at Provincetown, Mass.

Three group portraits, comprising the Mosby triptych, from the collection of pastel portraits of Union and Confederate Veterans of the Civil War, by Walter Beck, were lent to the Brooks Memorial Art Gallery, Memphis, Tenn., for exhibition there during the Confederate reunion in June, 1924. They have been returned to their places in the gallery.

Two paintings by J. Alden Weir—Upland Pasture and The Gentlewoman—were lent to the Metropolitan Museum of Art for a memorial exhibition of the work of that artist held in the Gallery of Special Exhibitions from March 17 to April 20, 1924. These paintings have been returned to the gallery.

Three paintings—Birch-clad Hills by Ben Foster, A Family of Birches by Willard L. Metcalf, and The Island by Edward W. Redfield—were lent to the American Federation of Arts, which assembled and sent, through the cooperation of the Department of State and the United States Shipping Board, an exhibition of paintings by American artists to be shown at the great international exhibition in Venice during this spring and summer, 1924.

Thirty paintings by contemporary American artists, largely from the William T. Evans collection, were lent to the American Federation of Arts for its traveling exhibition during the season of 1923–24. These paintings were shipped to the Michigan Art Institute at Detroit for its exhibit of August 31 to September 8, 1923, and have since been shown at Nashville, Tenn., Kansas City, Mo., Peoria, Ill., Memphis, Tenn., Lincoln, Nebr., Clay Center, Kans., and New Orleans, La. They have been returned to the gallery.

The painting by John La Farge, entitled "The Visit of Nicodemus to Christ," was lent to the American Federation of Arts for exhibition at the Carnegie Public Library, Fort Worth, Tex. Since returned to the gallery.

### THE HENRY WARD RANGER FUND

Since the paintings purchased during the year by the Council of the National Academy of Design from the fund provided by the Henry Ward Ranger bequest are, under certain restrictions, prospective additions to the national collection the list may be given in

this place. The names of the institutions to which they have been assigned are as follows:

| Title | Artist | Date purchased | Assigned |
|---|---|---|---|
| 31. The Hurrying River | Robert H. Nisbet, A. N. A | Dec. 18, 1923 | Telfair Academy of Arts and Sciences, Savanna, Ga. |
| 32. The Little Princess | Karl Anderson, A. N. A | do | Cedar Rapids Art Association, Cedar Rapids, Iowa. |
| 33. Evening Interior | John C. Johansen, N. A | do | The Columbus Gallery of Fine Arts, Columbus, Ohio. |
| 34. Captain Taylor's Sister. | Ernest L. Ipsen, A. N. A | do | Free Public Art Gallery, Dallas, Tex. |
| 35. Far Away and Long Ago. | F. Ballard Williams, N. A | Apr. 14, 1924 | Arnot Art Gallery, Elmira, N. Y. |
| 36. Midsummer | William S. Robinson, N. A | Apr. 7, 1924 | |
| 37. The Bathers | Spencer Nichols, A. N. A | do | |
| 38. The Little Princess | Arthur P. Spear, A. N. A | do | Waco Art League, Waco, Tex. |
| 39. The Necklace | Richard E. Miller, N. A | Apr. 14, 1924 | |
| 40. The Brook at Carversville. | E. W. Redfield | do | Free Public Library of Jersey City, Jersey City, N. J. |
| 41. Clearing after September Gale — Maine Coast. | Howard Russell Butler, N. A | Apr. 7, 1924 | |

SPECIAL EXHIBITIONS HELD IN THE GALLERY

A collection of nine paintings by the Tuscan artists Francesco Gioli (1846–1922) and Luigi Gioli, lent by the Royal Embassy of Italy, Washington, D. C. These works were shown on screens in the totem-pole room at the south end of the gallery.

A special joint exhibition of paintings by Savely Sorin and sculptures of Seraphin Soudbinine was held in the large central room of the gallery. The opening view, cards for which were issued by the Smithsonian Institution, took place on the afternoon of January 10, from 2 to 4.30. The exhibition closed on January 27, 1924.

An exhibit of the art work of Viennese children, pupils of Professor Cizek, of Vienna, was held in the lobby of the Natural History Building, under the auspices of the American Federation of Arts, May 7 to 19, 1924. This exhibit is being circulated in this country under the auspices of the Rockefeller Foundation.

INSTALLATION OF THE WORLD WAR PORTRAITS

In the annual report for 1923 a brief account was given of the painting and subsequent history of the World War portrait collection provided by the National Art Committee, and it may be desirable here to repeat the statement there made to the effect that the original plan for the acquirement of the collection for the Nation has not as yet been fully carried out. In order that the gift of

these portraits might have a distinctly national character, it was planned that a group of two or more, financed by citizens of any city, should be inscribed as presented by that city. Thirteen of the portraits were in this manner added to the national collection, while eight await the reawakening of the patriotic impulse that inspired the original movement in behalf of a World War collection.

In 1921 the collection was turned over to the American Federation of Arts by the committee for exhibition purposes, and was shown in 25 of the principal American cities. On arrival in Washington, June 12, 1923, the portraits, 20 in number, and 1 portrait group, supplemented later by a portrait of the Queen of the Belgians, were installed in the foyer of the New National Museum, in direct association with the great collection of World War historical exhibits. This proved unsatisfactory, however, and space was finally provided on the second floor of the Natural History Museum, where partitions were erected inclosing a floor space 34 by 37 feet. This improvised gallery, artificially lighted, although separated from the gallery proper, proved to be quite satisfactory, and the portraits are shown to good advantage.

### DISTRIBUTIONS

Loans have been withdrawn by their owners as follows:

Evening; Junipers in Winter, by Ludwig Dill; withdrawn by the American Federation of Arts.

Portrait of Associate Justice Pierce Butler, of the United States Supreme Court, by Nicholas Richard Butler; withdrawn by Mr. Butler.

Forty-one paintings by Ossip Perelma; withdrawn by Mr. Perelma.

Portrait of San Lorenzo Guistiniano, by Gentili Bellini; withdrawn by the American Red Cross through Miss Irene M. Givenwilson, curator of the Red Cross Museum.

Painting entitled "A Prayer to St. Genevieve," by Mme. la Marquise de Wentworth; withdrawn by Dr. J. H. Gore.

### NECROLOGY

The announcement of the death of Ralph Cross Johnson on July 9, 1923, at his summer home, city of Belfast, Me., where he and Mrs. Johnson had settled for the summer, came as a great surprise and is deeply regretted by the Smithsonian people, and very especially by the staff of the National Gallery. Mr. Johnson's gift to the gallery of masterpieces of painting is regarded as one of the richest contributions ever made to the art treasures of the Nation.

The Rev. Alfred Duane Pell, D. D., of New York City, a benefactor of the gallery, died in April, 1924.

Appended to this report is a list of portraits and portrait sculpture, approximately 450 in number, belonging to the Smithsonian Institution and its branches (not printed). It is intended to serve as a record of the Institution's collections in these branches and for convenience in organizing the contemplated national portrait gallery.

Respectfully submitted.

W. H. Holmes, *Director.*

Dr. Charles D. Walcott,
*Secretary, Smithsonian Institution.*

# APPENDIX 3

## REPORT ON THE FREER GALLERY OF ART

SIR: I have the honor to submit the fourth annual report on the Freer Gallery of Art for the year ending June 30, 1924.

### THE COLLECTION

Work completed during the year includes the examination, classification, and cataloguing of Chinese and Japanese stone sculptures and paintings. Further work has been done in the preservation of oil paintings; 40 Whistler water colors and pastels have been reframed, and the titles of those on exhibition have been painted upon the frames. The relettering of titles and references upon the mounts of Whistler etchings and lithographs is well advanced and the work of remounting a certain number has been begun.

Identification photographs of all objects in the collections of pottery, stone sculpture, jade, and bronze, and of a number of Chinese paintings in panel form have been made. These photographs are mounted upon the cards of the general catalogue and provide an easy but accurate means of reference which saves much handling of the collections. In response to requests other photographs and slides have been made, reproducing not only objects in the collection, but also cases and other details of installation, as well as views in and about the building.

During January and February a special exhibition of 136 Whistler etchings, dry points, and lithographs was on view in Galleries I, II, III, and IV. In May the Chinese *makimono*, shown in Gallery XIV, were installed in cases built to receive them. Other changes in exhibition involved 42 oil paintings, 14 water colors, 20 pastels, 5 Indian paintings, 3 Persian paintings, 2 Chinese paintings, 2 Chinese bronzes, 2 Chinese sculptures, 1 piece of Korean pottery, 1 Japanese painting.

One thousand four hundred gallery books, giving detailed information about objects on exhibition, have been compiled, mimeographed, and bound for use in all the Whistler galleries, including the Peacock Room. Through the courtesy of the Boston Museum of Fine Arts, the *Synopsis of History*, a parallel chronological table prepared for the use of students, has been issued in a Freer Gallery

edition, which has had a second printing of 500 copies, while our pamphlet giving general information about the gallery and collections has reached a third printing of 3,000 copies. One thousand four hundred and eighty-two copies of the foregoing publications have been sold at the north entrance and on order.

Additions to the collections by purchase are as follows:

BRONZE, CHINESE

23.1. Ceremonial vessel of the type *chia*. Chou dynasty, 1122 to 255 B. C.
23.2. Toilet box of the type *lien*. Six Dynasties, sixth century (?).

PAINTING, INDIAN

23.3. Jaina Illuminated MS. of the Kalpa Sūtra, fifteenth century.
23.7. Pañcama Rāginī. Rajput, Rājasthāni. About A. D. 1600.
23.8. The gracious manifestation of Devī. Rajput, Rājasthāni, seventeenth-eighteenth century.
23.9. The death of Bhīsma. Rajput, Pāharī (?) seventeenth century (?).
23.10. Damayantī's Wedding Procession. Rajput, Pāharī (Kāṇgrā). From the Nala-Damayantī series. Late, eighteenth century.
23.11. From the Nala-Damayantī series. Rajput, Pāharī (Kāṇgrā). Late eighteenth century.
23.12. From the Nala-Damayantī series. Rajput, Pāharī (Kāṇgrā). Late eighteenth century.
23.13. From the Nala-Damayantī series. Rajput, Pāharī (Kāṇgrā). Late eighteenth century.

PAINTING, PERSIAN

23.4. Burning Idols. About A. D. 1350.
23.5. From a Shah Namah MS. Zoḥak feasting. About A. D. 1300.
23.6. Majnun. About A. D. 1500.

SCULPTURE, CHINESE

24.1. Taoist divinities and floral designs. Engraved limestone lunette. T'ang dynasty, seventh-eighth century.
24.2. A Buddhist procession of musicians and a dancer. Limestone relief. T'ang dynasty, eighth-ninth century.

Additions to the library, by gift and purchase, comprise 7 maps, 134 pamphlets, and 145 books and periodicals in various Asiatic and European languages. A list of these additions accompanies this report. (Appendix A, not printed.) The necesary work of examining the Chinese texts for omissions and duplications due to faulty printing and binding has been begun and is still under way. Seventy-four volumes of European books have been rebound.

BUILDING AND EQUIPMENT

The workshop has built during the year, one 15-foot case, three 12-foot cases, and two 9-foot cases, with easels to be placed in them; also, four 70-inch cases, two small square cases, and six stands for

objects shown in cases. Six new wooden frames for cases were made and the glass tops for these assembled. For this work a table and rack with a metal pan was built. Two new pedestals for stone sculptures were built and the sculptures mounted. The shop has made also 40 butternut picture frames, which were sent away to be gilded, 58 reeded French walnut frames, 24 frames for gallery and other signs, and one large American walnut frame for hanging a six-fold screen. In the autumn a removable vestibule door for winter use was built and installed at the north entrance. In connection with the use of the auditorium, the shop built a portable wooden platform to be placed at times on the concrete stage, and fitted up closet No. 10 as a cloak room, made a stand and lockable cover for the projection lantern, built a portable barricade, and rehung the door leading from the auditorium to the emergency exit. Locks were placed on all storage cases in storage rooms 3 and 4, and numerous fittings, such as bronze clamps for *makimono* on exhibition, a map drawer in the curator's office, a device for hanging *kakemono* for examination, stands with frames for notices, etc., were made.

A portable scaffold was built for use in the court in cleaning windows; the joints of the coping of the main walls and court walls were covered with felt and cement; a picture molding was put on the west wall of study room No. 1; one section of a new device for modifying the light has been made and installed in the attic; and miscellaneous repairs have been made on objects in the collection and on furniture and building.

The shop has also recolored the east wall of Gallery XVI, painted the floor of study room No. 2, painted numbers in the various sections of attic and sub-basement in accordance with the architect's plan, painted the underside of the skylight glass, and lettered and painted several signboards. In the summer of 1923 the lettering for the inscriptions to be placed on the outside of the building was done by the shop painter after the architect's design, and later the inscriptions were cut by outside contract. By outside contract, also, weatherproof shades were put outside the north and south corridor windows.

To the general equipment have been added during the year a mimeograph, a stereopticon lantern, and several pieces of office furniture.

The Freer Gallery is gratefully indebted to the Fish Commission for the gift of goldfish for the fountain, to the Zoological Park for the loan of three peafowl, and to the Department of Agriculture for advice as to the care of the box trees and rhododendrons in the court and for constant oversight of them.

### ATTENDANCE

The gallery has been open every day, with the exception of Monday, from 9 o'clock until 4.30, and with the exception, also, of four days when it was closed by Executive order at the time of the death of President Harding. The total attendance for the year was 111,942. The aggregate Sunday attendance was 28,925, making an average of 546; the week-day attendance amounted to 83,017, with an average of 324. Of these visitors, 482 came to work in the study rooms or to examine objects not on exhibition; 70 to make a study of the building, storage facilities, lighting, wall-coloring, etc.; 10 to make copies or studies from objects in the collection, and 35 brought objects in their possession for examination and information.

On February 7, 8, and 9 the auditorium of the Freer Gallery was placed at the disposal of the Library of Congress for the presentation of three recitals of chamber music. These concerts were the gift to the Library of Mrs. Frederic Shurtleff Coolidge, to accompany her gifts of the manuscripts of 13 modern compositions to the music division. Seven of these were performed.

On April 29 Professor Paul Pelliot, of the Collège de France, gave an illustrated lecture on "Chinese bronzes, jades, and sculptures." The total attendance at the concerts was 1,080, and at the lecture 202, making a grand total attendance for the gallery of 113,224.

### PERSONNEL

Miss Grace L. McKenney entered as an assistant on October 22, 1923.

Miss Mildred M. Tytus worked as an assistant from November 12 to May 17.

Mrs. Rita W. Edwards was transferred from the office of correspondence and documents on February 16, and was regularly appointed to the position of stenographer on April 1.

Miss Chie Hirano, librarian of the department of Chinese and Japanese art of the Boston Museum of Fine Arts, and Mr. K. S. Wang, have worked on the cataloguing of Japanese and Chinese books.

### FIELD WORK

Since the activities of the expedition sent to China under the joint auspices of this gallery and the Museum of Fine Arts, Boston, have been conveyed to you in detail from time to time through the reports and correspondence of the field staff, I venture merely to remind you now of the fruitful investigations carried on during the year at Hsin-chêng Hsien in Honan; at I Chou in Chihli; at the tombs of Han Wu Ti, Ho Chü-ping, and others in Shensi; and,

latterly, at Yü-ho Chên in Honan, where some burials of the Han dynasty have been thoroughly investigated with gratifying results. But important as the archeological work of our expedition has been, we are more to be congratulated, perhaps, on our success in establishing between ourselves and the Chinese authorities a cooperative agreement with regard to archeological investigation which has been confirmed by the unsolicited appointment of Mr. Bishop as Honorary Adviser in Archeology to the Historical Department of the Chinese Government. An arrangement of this sort was conceived as the fundamental object of our expedition, and its accomplishment marks the first definite effort of the kind to bring Chinese archeologists and officials together in a mutually beneficial and dignified relationship with western archeologists and museums, thus providing in some measure, at least, a working basis on which a more enlightened scholarship may flourish and gradually supplant, let us hope, the ruthless and unscientific collecting of Chinese antiquities on a commercial scale which has hitherto been allowed and even encouraged to furnish so much of the material available for students in this vast and increasingly important field.

Mr. Bishop's detailed account of his field activities accompanies this report as Appendix B (not printed).

Respectfully submitted.

J. E. Lodge, *Curator.*

Dr. Charles D. Walcott,
*Secretary, Smithsonian Institution.*

# APPENDIX 4

## REPORT ON THE BUREAU OF AMERICAN ETHNOLOGY

SIR: I have the honor to submit the following report on the researches, office work, and other operations of the Bureau of American Ethnology during the fiscal year ending June 30, 1924. These were conducted in accordance with the act of Congress approved June 12, 1923, which contains the following item:

> American ethnology: For continuing ethnological researches among the American Indians and the natives of Hawaii, including the excavation and preservation of archeologic remains, under the direction of the Smithsonian Institution, including the necessary employees and the purchase of necessary books and periodicals, $44,000.

The Bureau of American Ethnology was founded by Maj. J. W. Powell and placed under the direction of the Secretary of the Smithsonian Institution by act of Congress. This bureau is devoted to the increase of knowledge of the American Indian, as well as of the natives of Hawaii and the aborigines of Porto Rico. It follows the ideal of the Smithsonian Institution as applied to researches on the American Indians, including all branches of their archeology and ethnology. The bureau publishes annual reports and bulletins, the whole number of these thus far published being 40 reports and 81 bulletins. The former assume the form of memoirs, often large and highly technical; the latter are generally smaller in size, often preliminary in character.

The fundamental idea which led to this appropriation was the recognized necessity for reliable information for a proper appreciation of the Indian, as an aid to legislation. Very extravagant and diametrically opposite opinions were rife regarding the character of our aborigines. In the early days of contact of the European and Indian races erroneous romantic ideas were largely prevalent, but with the application of the science of anthropology new values of Indian character developed. The Indian in some quarters was regarded solely as an object of research; the humanitarian side was lost sight of, and the fact that he is a man belonging to one of the most important races in the ultimate amalgamation of the different peoples was overlooked. The aim of the Bureau of American Ethnology is to discover and to disseminate correct ideas of the Indian as a race, that our people may better understand and

appreciate his history, language, sociology, music, religion, and various arts and industries. It is obligatory for the bureau to preserve accurate records of customs indigenous to America that are rapidly being lost in the settlement of the former homes of the Indians by members of the white race. The value of this material will increase in coming years, for the records that are now being made are final and in many cases will be the sole objective information that posterity will have of the Indian and his customs. This work is imperative, for within the past few decades a great deal of information of this kind has disappeared unrecorded, and the probability is that this generation will witness the death of most aboriginal survivals in culture.

While the ideal of the bureau is the acquisition of knowledge and the publication of the same through reports, there has grown up a great deal of work on related subjects that absorbs more or less of the time of the chief and his staff. Information is sought from all quarters regarding the Indians, and urgent calls from State institutions and universities asking for advice and help in local problems have been more numerous than at any other time in the history of the institution. Routine office work has assumed in the past ten years a larger relative proportion than in former decades. Various agencies have quickened interest in the problems considered by the Bureau of American Ethnology. The great increase in travel resulting from the development of the automobile and the foundation of national parks has intensified the desire to "see America first." Our parks and Indian reservations have been visited in the past few years by an ever increasing number of travelers. This has stimulated a demand on the part of the general public for accurate information on the history and customs of the Indians, which the bureau endeavors to supply.

It can not be expected, when the office work has grown to such magnitude and the appropriations have remained practically the same as they were before the war, that the quantity of research in the field can equal that of former years, but the chief has endeavored to have as many of the staff in the field as he can and to publish the reports of their work as rapidly as feasible. It is self-evident that the acquisition of knowledge regarding the Indians, even if not published, is a most valuable asset, notwithstanding the fact that it must be stored in the archives to await a more favorable time for publication.

The first duty of the chief being administrative and his time for a large part of the year being occupied with routine matters, he does not have much opportunity for field work, but notwithstand-

ing this fact scientific work of a limited nature has been done by him in the field. He has kept en rapport with the work of all archeological expeditions in the Southwest in order to be able to advise you in regard to your recommendations for archeological work on the public domain. The number of expeditions in the Southwest has tripled or quadrupled in the last decade.

The field work engaged in by the chief during the past year was archeological in nature, in cooperation with Mr. E. M. Elliott and his associates, of St. Petersburg, Fla. There are few areas in the United States which promise more to the archeologist than southwestern Florida along the shore from Tampa Bay to Cape Sable. Perhaps no one has added more to our knowledge of this area than Mr. F. H. Cushing, a former ethnologist of the bureau. The problems of southern Florida demand more objective material than we have from the Everglades and the Ten Thousand Islands, where numerous proofs of a vanished population are in evidence in the form of enormous shell heaps and earth mounds.

The chief began his researches on Weeden Island, near St. Petersburg, which is situated at the end of Gandy Bridge, an artificial causeway crossing Tampa Bay. The evidences of prehistoric aboriginal life on Weeden Island are numerous large shell heaps and sand heaps which may be divided into groups or types, as kitchen middens, observatories, foundations of houses, and burial places. Evidently there was formerly a large village near the highest point of the island. One of the mounds which was chosen for excavation turned out to be a cemetery, and in the course of the winter about one-half of it was excavated. The work extended from November until March, inclusive.

The chief was not able to be in St. Petersburg the whole winter, but after having started the work in November, 1923, he returned to Washington, assigning the direction of the excavations to Mr. Stanley Hedberg and later to Mr. M. W. Stirling, of the National Museum, who continued the work until the chief's return in February. As a result of the excavation a large collection of aboriginal objects was brought to the United States National Museum. This collection contains many unique specimens and will later be permanently installed in the Museum upon completion of a report on it. No specimens had formerly been excavated at Weeden Island and the unique results of this work are regarded as most important. A preliminary report has been published in the Smithsonian Miscellaneous Collections, vol. 76, No. 13.

At the present time it is too early to draw final conclusions from the above work, but it is intended to continue excavations in Florida in the winter of 1924. Many of the specimens found were not very

different from those characteristic of the west coast of Florida, but the number of objects is greater and their variations so extensive that they are thought to indicate a high development of the aboriginal culture in southern Florida. Evidences of two distinct cultures, one above the other, were determined from the excavations in the Weeden mound. The lower contained crude pottery, very few implements, mostly of shell, all having a considerable likeness to the so-called archaic Antillean culture of Cuba. The upper layer contained very fine specimens of decorated pottery in great numbers, showing close relationship to the ceramics of Georgia. This indicates an extension southward or a drift of population, possibly allied to the Muskhogean, into the peninsula. The relationship of the people of the lower layer was Antillean rather than Muskhogean. The inhabitants of southern Florida, when the earliest burials were made in the Weeden mound, probably belonged to an unknown tribe. The artifacts in the upper layer may be remains of the Caloosa tribe, which was found there when Tampa Bay was visited by Ponce de Leon. The Indians that now inhabit the Everglades—the Seminoles—are a late introduction into Florida and of Creek descent. The numerous Florida shell heaps antedated their advent by several centuries.

The chief has actively worked during the past year for the formation of a new national monument on the Little Colorado, near Flagstaff, Ariz. This monument has been temporarily named the Wupaki National Monument and includes ruins at the Black Falls of the Little Colorado, first described by him in 1900. It is to be hoped that before another report this most interesting group of stone buildings will be added to the other archeological monuments. The ruins that comprise it have some of the best preserved walls in the Southwest.

The impression exists in some quarters that the work of the Bureau of American Ethnology must be completed in a certain definite time. This impression has no real foundation, for ethnology is like any other scientific study and has no limitations. Every new year of work in the bureau enlarges the horizon of research and presents new problems regarding the American Indians for solution. Since the foundation of the bureau by the late Maj. J. W. Powell the aims and tendencies of the science of ethnology have greatly enlarged, and the published studies of the staff have put the science of anthropology upon such a firm foundation that not only the past appropriations but also the prospective expenditures by Congress are more than justified. The earlier work covered a limited scope; it pointed out the field for future work. It now remains for the comparative ethnologist to connect the various problems of man and his culture and to shed new light on what still remains unsolved.

By law the ethnological research of the staff of the bureau is limited to the American Indians and the aborigines of Hawaii. The logical outcome is the enlargement of the Bureau of American Ethnology into a bureau devoted to the study of all races.

Even in studying the Indians there are great regions of South America which are practically unknown to the ethnologist. South America, next to Central America, contains examples of probably the highest culture that has ever been attained by the American race. I refer, of course, to the civilization of the great empire of the Incas, extending from the Isthmus of Panama to southern Chile. In this prolific field the bureau has done comparatively little, and the time is now ripe for an extensive exploration in that field. No less important in South America is the area inhabited by wild tribes, such as the Matto Grosso and other regions east of the mountains. The remarkable similarity of the culture of the Indians in Argentina and that of the pueblos especially pleads for more thorough investigation of the former area. The great valley of the Amazon, that has attracted the ethnologist since the wonderful voyage of Alex. Von Humboldt at the beginning of the last century, still holds out new problems.

The bureau will soon issue a remarkably complete work by Dr. Walter E. Roth on British Guiana, which probably will be one of the finest it has ever published. It adds much to our knowledge, but no more important fact than the magnitude of the numerous fields remaining to be investigated in northern South America. The languages, sociology, religion, arts, history, and archeology of almost every country in South America demand research. Here we have a great continent awaiting the student of the antiquity and cultural relationship of the American race.

In the same way the field of Central America and Mexico now awaits the investigator, although in that particular area the bureau has made some very important contributions.

There remain special problems of secondary nature throughout the continent that are as yet unanswered which would be within the scope of the bureau's work. All ethnological work on the South American Indians should have very great influence in uniting more firmly the republics of Spanish origin and the United States.

Of the many problems awaiting investigation, one of the more important is the plotting of the trails by which communication was carried on between Indian tribes. These trails historically followed by roads and railroads now serve the growing habit of the automobile and the desire of Americans to see their own country. A study of the foods used by the Indians has a practical value which can not

be overestimated. The number of plants used by the Indians far outnumbers those on our own table, and the bureau might well give attention to the discovery of new food resources.

It is desirable to increase the archeological work of the bureau which thus far has attracted a great deal of attention and which is one of the foremost departments of anthropological study. This study should be extended to Florida and the coast States with a view to determining the relationship of the antiquities of North and Central America. The investigation of the southwestern portion of Texas and the adjoining State of New Mexico should be exploited, especially the contents of the new national monument near Carlsbad which contains important archeological material. One important problem is to follow the extension northward of the Huaxtec culture along the shores of Tamaulipas and Texas to our southern mound builders.

During the fiscal year Dr. John R. Swanton, ethnologist, completed the translations of stories from his Koasati, Alabama, Hitchiti, Natchez, and Creek texts, and added to them the stories obtained only in English and those in the Tuggle collection; he provided these stories with footnotes referring to similar tales among other tribes, and prepared an introduction for the whole. In addition to this work he has edited and largely recast a manuscript on Indian trails by the late Mr. W. E. Myer. Also, with the assistance of Miss Atkins, he has begun incorporating into an alphabetical card index all words in the Timucua language contained in the religious works of the Franciscan missionaries Pareja and Movilla—nearly all that is left to us of this old Florida tongue. Nearly one-third of the work has been completed.

On the 1st of July, 1923, Dr. Truman Michelson, ethnologist, was on board the *Sagona* en route to Labrador. He reached the Northwest River on July 4, where he found a few Nascapi Indians, one from Davis Inlet, besides the ordinary Montagnais Indians of the vicinity. From his work among these Indians it follows that the language of the Nascapi and Davis Inlet Indians is the same, and that instead of being a wholly distinct language it is nothing but a Montagnais dialect. Furthermore, it is abundantly clear that the dialects of the above-named Indians form a distinct unit as compared to the Montagnais dialects of Lake St. John and Lake Mistassini, as well as the so-called "Cree" of Rupert's House and the East Main River, which really are not Cree at all but Montagnais dialects. The report of some Indians to the west of the Nascapi speaking a language unintelligible to them is worth investigating at a later date. It may be noted that the folklore of the Indians of Labrador contains more elements occurring among Central Algonquians than

has been suspected. The very simple social organization of the Labrador Indians makes it very probable that the rather complex organizations of the Central Algonquians are unoriginal and are due both directly and indirectly to the influence of non-Algonquian tribes. He was able to measure only a few of the Indians at the Northwest River, so it is not possible to state precisely which physical type they represent.

At the conclusion of his work he returned to Rigolet and left on July 22 for St. Johns, Newfoundland. En route he was able to take the measurements of a few Eskimos. On his arrival at St. Johns he proceeded by steamer and train for Tama, Iowa, to renew his researches among the Fox Indians. He devoted especial attention to the ceremonial runners of these Indians, and in the course of the winter submitted a manuscript on them for publication by the bureau. Further, a number of Fox texts were translated and other ethnological data obtained. Doctor Michelson returned to Washington near the close of September. He made another trip among the Foxes in May and returned to Washington toward the end of June. During this trip he obtained new data on Fox ceremonials.

By joint arrangement with the Museum of the American Indian, Heye Foundation, the bureau undertook in the summer of 1923 the excavation of the Burton Mound at Santa Barbara, Calif., which was the chief village of the Santa Barbara Indians and without question the most important archeological site on the southern California coast. Mr. J. P. Harrington, ethnologist of the bureau, was detailed to take charge of the exploration of the mound and the work was commenced early in May, 1923, and continued throughout the summer and fall. The first day's work revealed the location of the cemetery, just where old Indians had stated that it was situated. During several months of careful stratigraphical excavation many facts of interest for the prehistory of the Santa Barbara Indians and the early culture of the Pacific coast in general were recorded.

The principal rancheria or village of the ancient Santa Barbara Valley was not at the mission, where the Indians were later gathered, but at the beach. It was situated just west of the mouth of Mission Creek, where a landing cove for canoes and two low mounds, one by the beach and a larger one 650 feet inland and now known as the Burton Mound, afforded unusual attraction as a dwelling place for Indians. At a number of places in the locality were sulphur springs; also springs of good drinking water. The name of the village was Syujtun, meaning "where the trail splits." There a thriving population of some 500 Indians lived on the wild food products of the neighboring shore and sea and of the Santa Barbara Valley, rich in acorn-bearing oaks and game animals.

The inhabitants of Syujtun remained unmolested until the establishment of the Santa Barbara Mission in 1786. After this the native villagers were gradually removed to the adobe cuarteles of the mission, 2 miles distant, and the desolated beach was known as "el puerto de Santa Bárbara" or as "el rancho de la playa." After the confiscation of the mission lands the ownership of the beach ranch passed into private hands. During the forties the owner was none other than Capt. George C. Nidever, known in California history as the rescuer of the last surviving Indian woman from San Nicolas Island. Captain Nidever sold the property in 1851 to Augustus F. Hinchman, whose daughter, Miss Stella F. Hinchman, has furnished valuable data about the history and traditions of the mound. In 1860 Mr. Hinchman sold the tract in turn to Lewis T. Burton, who made it his home for 19 years and after whom the mound has been called in more recent times. None of the early owners had allowed excavation on the property and with erection of the Potter Hotel on top of the mound in 1901 all hope of archeological investigation was lost. This hotel burned to the ground on April 19, 1921, and the old village site was thereby again released for archeological investigation.

The results of this excavation of the Indian town of Santa Barbara proved rich and interesting beyond expectation. The graves that were opened were crowded with human bodies, trinkets, and a great variety of utensils. Among the rarest specimens are the largest soapstone canoe ever discovered in California, a wooden awl such as is described by the early historians, and a number of objects of problematical use. There are soapstone pipes, fishhooks of abalone and bone, sinker stones, arrowheads of great variety, spearheads, about 140 fine mortars, pestles, including some very long ones, beads of many kinds, pendants, daggers, bowls and kettles of soapstone, including some of the largest ever found, native paints, etc. About 300 skeletons were taken out, among them some very ancient skeletons from the coquina or reef-rock layer. These are now in the hands of Dr. Bruno Oetteking, of the Museum of the American Indian, who is preparing an elaborate report on them.

At the close of January, Mr. Harrington returned to Washington and has since then been engaged in the preparation of his report on the Burton Mound.

Mr. J. N. B. Hewitt, ethnologist, was engaged for the greater part of the year in office work. This consisted chiefly in the historical analysis of the large mass of material in native text relating to the formation and structure and import of the League or Confederation of the Five Iroquois Tribes or Nations. He was also occupied in the translation of the farewell address of Degana-

wida, a founder of the confederation, into literary English. In this address Deganawida briefly summarizes the scope and import of the institutions and the laws of the league; herein, with the masterful hand of a prophet-statesman, he also graphically recapitulated the work accomplished by the several co-working founders.

Mr. Hewitt also translated from the Onondaga text the laws first recognizing the extant institution of chieftainess in uterine kindreds and then adopting it for the purpose of making it fundamental among the institutions of the League of the Iroquois, the laws defining the duties, rights, and obligations of the incumbent of such office and carefully prescribing the method by which a woman should be nominated by the mothers of her own uterine kindred, the method by which the choice should be confirmed, first by her own, and then by sister, and then by cousin clans, and then finally how this candidate should be installed at a federal council of condolence and installation. These laws also prescribe the method by which such chieftainess can, for cause, be deposed and a successor nominated and installed as prescribed by these laws; and they also prescribe the method of nominating and installing the male aid to the chieftainess, who must be a warrior and an orator to fulfill his adjuvant duties.

As a member of the United States Geographic Board, representing thereon the Bureau of American Ethnology, Smithsonian Institution, Mr. Hewitt has attended all regular and special meetings of the board with a single exception. As custodian of manuscripts of the Bureau of American Ethnology Mr. Hewitt reports that more than 250 items were withdrawn and consulted by the various collaborators of the bureau and by other students.

In past years, in studying the social and political institutions of the Iroquoian peoples, especially of the Five (latterly Six) Nations or Tribes, Mr. Hewitt has spent a number of field seasons in carefully collecting and recording in native texts from the best available leaders, chieftains, chieftainesses, ritualists, and ceremonialists, chiefly in the Mohawk, Onondaga, and Cayuga dialects, extensive material and data concerning the principles, the laws, decrees and ordinances of the instituting councils, the set rituals, the prescribed chants, and the ceremonial addresses, which together defined the functioning apparatus of the great commonwealth, commonly called the League or Confederation of the Iroquois. Mr. Hewitt has undertaken to subject, so far as possible, this text material to a careful literary and historical analysis and also to a thorough grammatic and lexic criticism, in order to restore as far as the evidence thus secured will warrant, these rituals and chants and set addresses to the earlier forms which were probably used when the League of the

Iroquois was instituted in the closing decades of the sixteenth century. This work is necessarily tedious and slow but is of supreme necessity. The results thus far are highly gratifying.

In June, 1924, Mr. Hewitt visited the Six Nations of Iroquois dwelling near Brantford, Ontario, Canada; the Onondaga dwelling near Syracuse, N. Y.; the Tonawanda dwelling near Akron, N. Y.; the Tuscarora dwelling near Sanborn, N. Y. His object on this trip was to obtain a better knowledge of the music of the ritual chants of the Condolence and Installation Council. He also secured a quantity of purple wampum which is used in these league rituals and which has now become so scarce that its cost is well-nigh prohibitive.

Mr. Hewitt was also able to secure from the very few persons who still retain some definite knowledge of the principles and institutions of the league additional interpretative and confirmatory information concerning certain critical passages in the native texts which he recorded in former field trips.

Mr. Francis La Flesche, ethnologist, gave most of his time to the assembling of his notes on the child-naming rites and ceremonies of the Osage Indians. These ancient rites, with their ceremonies, are now practically obsolete, and it was fortunate that Mr. La Flesche succeeded in securing two of the remaining versions. The first was obtained from Wa-xthi′-zhi, a member of the I$^{n}$-gtho$^{n}$′-ga or Puma gens. This version will form the first part of the volume on this subject.

The other version is that used by the Tsi′-zhu Wa-shta-ge, Peacemaker, gens. It was with considerable difficulty obtained from old Sho$^{n}$′-ge-mo$^{n}$-i$^{n}$, a member of the gens, who was very conservative and opposed to having any of the tribal rites go to strangers. Since the recording of these ancient rites that had been transmitted through many generations, both these No$^{n}$′-ho$^{n}$-zhi$^{n}$-ga, Wa-xthi′-zhi and Sho$^{n}$′-ge-mo$^{n}$-i$^{n}$, have died, and it is now doubtful if any member of the tribe could be found who is able to recite the rituals and go through the ceremonial forms in their entirety.

Tsi′-zhu Wa-shta-ge version will form the second part of the volume, now nearing completion, which is to be called "Osage Child Naming Rites."

Mr. W. E. Myer, special archeologist, on his return from field work in Tennessee, took up the preparation of his report on the remains of the great prehistoric Indian settlement known as the Great Mound Group in Cheatham County, Tenn., a preliminary account of which was given in last year's report. This town is situated on the Harpeth River near Kingston Springs and is found in two clusters about a mile apart in the bend of the Harpeth River, covering about 500

acres. The fortification of the Great Mound Group was one of the finest prehistoric structures for defense made by the Indians of Tennessee.

Nearly all the lower river bend, called the "Mound Bottom" by the local people, contains evidences of walls, many of which have disappeared by long cultivation of the soil. Mr. Myer was not able to determine the age of these mounds, but buildings which they represent were undoubtedly destroyed before the coming of the white people.

One of the most interesting results of the summer's work was the excavation of a small mound on the Denny farm at Goodlettsville, Sumner County, Tenn., the relics from this mound showing that the inhabitants of this site belonged to a culture quite unlike that of much of the surrounding region in the valley of the Cumberland.

Mr. Myer also made studies in the southern part of Tennessee in Lincoln and Moore Counties and made a map of a hitherto undescribed mound group on Elk River.

### SPECIAL RESEARCHES

During the summer of 1923 Miss Frances Densmore visited the Makah Indians at Neah Bay, Wash., and recorded their songs. Neah Bay is near the end of Cape Flattery, but the coast is so mountainous that it is reached only by boat. At the time of Miss Densmore's visit there was only one passenger boat a week to this village. The principal industry of the Indians is salmon fishing. The purpose of this trip was to observe the music of Indians who live beside the ocean and to compare the music with that of tribes living on the mountains, plains, and desert. As a result of the comparison it was found that the music of the Makah resembles that of the Ute, Papago, and Yuma more than it resembles that of the Chippewa, Sioux, and Pawnee. This is general observation, the detailed comparison being unfinished. Three instances are as follows: (1) The Makah Indians use a "high drone," or sustained tone held by two or three women's voices, while the others sing the melody. This was heard among the Papago in southern Arizona and is found in certain parts of Asia. This suggests a cultural evidence that the Indians migrated from Asia and down the Pacific coast, the use of the drone being more pronounced among the Makah than among the Papago; (2) the Makah Indians have a considerable number of "non-harmonic" songs to which the term "key" can not properly be applied. These were found in southern Arizona but not in the plains region; (3) the Makah songs concerning the whale are marked by a very small compass and small intervals. The Ute songs concerning the

bear are also characterized by small intervals, but the compass is not particularly small. The Makah songs recorded were of several classes, including songs of the whale legends and whaling expeditions, songs of the potlatch and various social dances, songs connected with contests of physical strength, "gratitude songs," which were sung by individuals at feasts, lullabies for children, courting songs, and the songs of wedding festivities.

Dances and gatherings of the tribe were attended; numerous specimens illustrating the culture of the people were collected; the singers and environment were photographed; and about 30 specimens of plants were collected, with a description of their economic uses.

While in Washington, D. C., Miss Densmore arranged in a catalogue list 368 songs awaiting publication, and arranged in the proper order for publication all her material on Pawnee, Papago, Yuma, Cocopa, and Mohave music. Four manuscripts were submitted during the year, with the titles "Cocopa and Mohave Dance Songs," "Dance Songs and Flute Music of the Yuma," "Whaling Songs, Dream Songs, and Legend Songs of the Makah," and "Potlatch Songs of the Makah." These comprised, in addition to the text, 87 songs, with phonograph records, musical transcriptions, and analyses.

## EDITORIAL WORK AND PUBLICATIONS

The editing of the publications of the bureau was continued through the year by Mr. Stanley Searles, editor, assisted by Mrs. Frances S. Nichols, editorial assistant. The status of the publications is presented in the following summary:

### PUBLICATIONS ISSUED

Bulletin 79. Blood Revenge, War, and Victory Feasts Among the Jibaro Indians of Eastern Ecuador (Karsten). viii, 94 pp., 10 pls.

Bulletin 80. Mandan and Hidatsa Music (Densmore). xx, 192 pp., 19 pls., 6 figs.

Bulletin 81. Excavations in the Chama Valley, New Mexico (Jeancon). ix, 80 pp., 65 pls., 38 figs.

List of publications of the Bureau of American Ethnology. 45 pp.

### PUBLICATIONS IN PRESS OR IN PREPARATION

Thirty-eighth Annual Report. Accompanying paper: An Introductory Study of the Arts, Crafts, and Customs of the Guiana Indians (Roth).

Thirty-ninth Annual Report. Accompanying paper: The Osage Tribe: The Rite of Vigil (La Flesche).

Fortieth Annual Report. Accompanying papers: The Mythical Origin of the White Buffalo Dance of the Fox Indians; The Autobiography of a Fox In-

dian Woman; Notes on Fox Mortuary Customs and Beliefs; Notes on the Fox Society Known as "Those Who Worship the Little Spotted Buffalo"; the Traditional Origin of the Fox Society Known as "The Singing Around Rite" (Michelson).

Forty-first Annual Report. Accompanying paper: Salish Basketry (Boas).

Forty-second Annual Report. Accompanying paper: Social Organization and Social Usages of the Indians of the Creek Confederacy (Swanton).

Bulletin 78. Handbook of the Indians of California (Kroeber).

Bulletin 82. Two Prehistoric Villages in Middle Tennessee (Myer).

### DISTRIBUTION OF PUBLICATIONS

The distribution of publications has been continued under the immediate charge of Miss Helen Munroe, assisted by Miss Emma B. Powers. Publications were distributed as follows:

| | |
|---|---|
| Report volumes and separates | 2,058 |
| Bulletins and separates | 11,384 |
| Contributions to North American ethnology | 10 |
| Miscellaneous publications | 511 |
| | 13,963 |

As compared with the fiscal year ending June 30, 1923, there was a decrease of 3,731 publications distributed, due to the fact that no report volumes were issued during the year, whereas two reports were published in the preceding fiscal year.

### ILLUSTRATIONS

Mr. DeLancey Gill, illustrator, with the assistance of Mr. Albert E. Sweeney, continued the preparation of the illustrations of the bureau. A summary of this work follows:

| | |
|---|---|
| Drawings for publications | 138 |
| Photographic prints retouched for engraving | 85 |
| Negatives prepared | 372 |
| Films developed and printed from field exposures (rolls) | 24 |
| Photographic prints for distribution and office use | 733 |

The work of reclassification of negatives has progressed satisfactorily. As a prelude to a new catalogue of the large collection of negatives, this work will be of lasting value. About 4,000 negatives were identified and rejacketed, but much yet remains to be done.

### LIBRARY

The reference library continued under the immediate care of Miss Ella Leary, librarian, assisted by Mr. Thomas Blackwell.

During the year 560 books were accessioned. Of these 82 were acquired by purchase, 253 by gift and exchange, and 225 by binding of periodicals. The current periodicals annually received number about 975, of which 37 are by subscription, the remainder being

received through exchange. The library has also received 225 pamphlets. The aggregate number of books in the library at the close of the year was 25,621, of pamphlets about 15,325.

During the year many students not connected with the Smithsonian Institution have applied to the library for books. The library was used also by the Library of Congress and officers of the executive departments, and out of town students have made use of the library through frequent loans.

Conditions of crowding on the book shelves are now acute in many places in the stacks. Many volumes received by the library not pertaining to anthropology were transferred to the library of the Smithsonian Institution.

### COLLECTIONS

The following collections, purchased or acquired by members of the bureau or by those detailed in connection with its researches, have been transferred to the United States National Museum:

70367. Collection of about 90 specimens of picture pottery from the Mimbres Valley, N. Mex.

70553. Blanket on which is woven an elaborate representation of the Yeibichi dance of the Navaho Indians, presented to the bureau by Mr. Chee Dodge, St. Michael's, Ariz.

71026. Collection of archeological specimens made by the late John L. Baer during the summer of 1923 in the Susquehanna Valley region.

71278. California Mission Indian water basket collected by J. P. Harrington during the summer of 1922.

71347. Collection of archeological specimens secured in Tennessee and South Dakota by the late William E. Myer.

71430. Collection of archeological specimens from Pipe Shrine House in the Mesa Verde National Park, Colo.

71614. Collection of Indian implements and fossil animals found in Garrard County, Ky., along the Old Wilderness Trail, and presented to the bureau by Mrs. S. H. Burnside.

71691. Four prehistoric objects presented to the bureau, through the late W. E. Myer, by J. G. Braecklein.

71692. Three separate lots of stone implements from prehistoric village sites near Goodlettsville, Tenn., presented to the bureau through the late W. E. Myer, by a Mr. Meadow, John Bell Cartwright, and Capt. James Roscoe.

71694. Three lots of archeological specimens presented to the bureau, through the late W. E. Myer, by C. O. Chapman and A. B. Moore, Mrs. Lee Colin, and A. T. Sweet.

71697. Collection of archeological specimens from the Painted Kiva House, Mesa Verde National Park, Colo.

### PROPERTY

Furniture and office equipment were purchased to the amount of $76.29.

MISCELLANEOUS

The correspondence and other clerical work of the office has been conducted by Miss May S. Clark, clerk to the chief. Miss Julia S. Atkins, stenographer and typewriter, assisted the various members of the staff. Mr. Anthony W. Wilding, typist, has been engaged in copying manuscripts and in various duties connected with the office of the chief.

Mr. W. E. Myer, special archeologist, died December 2, 1923.

Respectfully submitted.

J. Walter Fewkes, *Chief.*

Dr. Charles D. Walcott,
*Secretary, Smithsonian Institution.*

# APPENDIX 5

## REPORT ON THE INTERNATIONAL EXCHANGES

SIR: I have the honor to submit the report on the operations of the International Exchange Service for the fiscal year ended June 30, 1924.

Congress appropriated $43,000 for the support of the service during the year, $2,000 less than the previous appropriation. On the basis of the previous year's business this reduced amount would have been sufficient for the needs of the service. Toward the middle of the fiscal year, however, the exchanges had increased to such an extent that it was necessary to send shipments to foreign countries at less frequent intervals, in order to reduce the expense incurred for freight, so as to avoid a deficit. Near the close of the year it was found possible to return to the Institution's practice of making shipments to all foreign countries at intervals not exceeding a month. In addition to the above amount, Congress appropriated for the exchanges $200 for printing and binding. The repayments from departmental and various other establishments aggregated $5,202.24, making the total resources available for carrying on the system of exchanges during the year $48,402.24.

The total number of packages passing through the service during the year was 460,658, an increase over the number for the preceding year of 82,832. The weight of these packages was 567,107 pounds, an increase of 74,291. Much of this increase was due to the receipt of a large number of publications from establishments in the United States for transmission to the universities and colleges in Japan that lost their libraries during the recent earthquake.

The publications sent and received by the Exchange Service are classified under three heads: Parliamentary documents, departmental documents, and miscellaneous scientific and literary publications. The term "parliamentary documents," as here used, refers to publications set aside by act of Congress for exchange with foreign governments, and includes not only documents printed by order of either House of Congress, but also copies of each publication issued by any department, bureau, commission, or officer of the Government. Governments to which this class of publications are forwarded send to this country in exchange copies of their own official documents for deposit in the Library of Congress. The term "de-

partmental documents" embraces publications delivered at the Institution by the various governmental departments, bureaus, or commissions for distribution to their correspondents abroad. Publications received in return are deposited in the various departmental libraries. "Miscellaneous scientific and literary publications" are received chiefly from learned societies, universities, colleges, scientific institutions, and museums in the United States for transmission to similar establishments in all parts of the world.

The number and weight of the packages of different classes are indicated in the following table:

| | Packages | | Weight | |
|---|---|---|---|---|
| | Sent | Received | Sent | Received |
| | | | *Pounds* | *Pounds* |
| United States parliamentary documents sent abroad | 176, 290 | | 83, 517 | |
| Publications received in return for parliamentary documents | | 4, 867 | | 9, 745 |
| United States departmental documents sent abroad | 134, 401 | | 180, 547 | |
| Publications received in return for departmental documents | | 7, 882 | | 24, 057 |
| Miscellaneous scientific and literary publications sent abroad | 107, 034 | | 195, 295 | |
| Miscellaneous scientific and literary publications received from abroad for distribution in the United States | | 30, 184 | | 73, 946 |
| | 417, 725 | 42, 933 | 459, 359 | 107, 748 |
| Grand total | 460,658 | | 567,107 | |

As mentioned in previous reports, the disparity between the number of publications transmitted abroad and those received in return is not as great as appears from the above figures. Packages sent abroad contain in many instances only a single publication, while those received in return often comprise several volumes. Furthermore, some foreign establishments send their publications directly to their destinations in this country by mail instead of through exchange channels.

During the year the State Department notified the Institution that the Government of Hungary had adhered to the two exchange conventions concluded at Brussels in 1886 and had established the Hungarian Libraries Board at Budapest to carry out the provisions of those conventions. The board was not fully established at the close of the year, but will be ready to assume its duties as the Hungarian Exchange Agency about October 1, 1924, when the agency in Budapest conducted by the Institution for many years will be discontinued. Dr. Julius Pikler, who has been the Smithsonian agent since July 1, 1906, has carried on the work to the entire satisfaction of the Institution, and I desire to express here appre-

ciation of his faithful and efficient service during his connection with this office.

The Institution was advised through diplomatic channels that the Governments of the Dominican Republic, Hungary, Latvia, and the Free City of Danzig had adhered to the two exchange conventions concluded at Brussels March 15, 1886.

Toward the close of the fiscal year the librarian of the Storting advised the Institution that the Norwegian depository of United States official documents had been changed from the Stortingets Bibliotek to the Universitets Bibliotek, Christiania.

The Japanese Association of the League of Nations submitted to this country through the Embassy of Japan in Washington an appeal for books for replenishing the libraries of Japanese universities and colleges which were destroyed by the earthquake. The association stated that that disaster wiped out huge collections of books in many libraries, including the collection of 700,000 volumes in the library of the Imperial University of Tokyo. The appeal was heeded by many American establishments and thousands of publications were forwarded to the Smithsonian Institution for transmission to Japan through the International Exchange Service.

From time to time some of the establishments that make use of the exchange service in the distribution of their publications abroad add to their announcements a word of appreciation. During the year a number of such gratifying expressions have been received, particularly from the Argentine Republic, England, Germany, and this country.

During the year 2,464 boxes were used in forwarding exchanges to foreign agencies for distribution, being an increase of 241 over the number for the preceding 12 months. Of the total number of boxes sent abroad, 289 contained full sets of United States official documents for foreign depositories, and 2,175 included departmental and other publications for depositories of partial sets and for other correspondents. In addition to the packages sent abroad in boxes, the exchange service mailed directly to their destinations during the year about 40,000 packages. While it is the practice of the service to send exchanges by freight to foreign agencies for distribution, quite a number of packages are received for remote places which can not well be reached through any of the agencies, and these packages are forwarded by mail. Furthermore, owing to the high ocean freight rates it often happens that it is cheaper to mail packages to some countries than to pack them in boxes and ship them by freight.

The number of boxes sent to each country is given in the following table:

*Consignments of exchanges for foreign countries*

| Country | Number of boxes | Country | Number of boxes |
|---|---|---|---|
| Argentine Republic | 44 | Japan | 262 |
| Austria | 55 | Latvia | 14 |
| Belgium | 65 | Lithuania | 9 |
| Bolivia | 2 | Mexico | 30 |
| Brazil | 34 | Netherlands | 65 |
| British Colonies | 3 | New South Wales | 29 |
| Bulgaria | 4 | New Zealand | 23 |
| Canada | 30 | Norway | 42 |
| Chile | 22 | Peru | 11 |
| China | 75 | Poland | 45 |
| Colombia | 16 | Portugal | 16 |
| Costa Rica | 9 | Queensland | 15 |
| Cuba | 5 | Rumania | 13 |
| Czechoslovakia | 64 | Russia | 72 |
| Danzig | 2 | South Australia | 18 |
| Denmark | 37 | Spain | 33 |
| Egypt | 7 | Sweden | 68 |
| Esthonia | 22 | Switzerland | 61 |
| Finland | 11 | Tasmania | 6 |
| France | 185 | Union of South Africa | 32 |
| Germany | 292 | Uruguay | 12 |
| Great Britain and Ireland | 332 | Venezuela | 10 |
| Greece | 11 | Victoria | 39 |
| Hungary | 47 | Western Australia | 6 |
| India | 50 | Yugoslavia | 15 |
| Italy | 92 | | |
| Jamaica | 2 | | 2,464 |

FOREIGN DEPOSITORIES OF UNITED STATES GOVERNMENTAL DOCUMENTS

In accordance with the terms of a convention concluded at Brussels March 15, 1886, and under authority granted by Congress in resolutions approved March 2, 1867, and March 2, 1901, 59 full sets of United States official documents and 38 partial sets are now sent through the Exchange Service regularly to depositories abroad. The Ministry of Finance, Government of Northern Ireland, Belfast; State Library, Reval, Esthonia; and the library of the League of Nations, located at Geneva, Switzerland, have lately been added to the list of those receiving full sets. The number of full and partial sets of governmental documents forwarded to foreign depositories is 97. The total number provided by law for this purpose and for the Library of Congress is 100.

The convention concluded at Brussels in 1886 provided for the international exchange of official documents and scientific and literary publications. That convention was ratified by the United States, Belgium, Brazil, Italy, Portugal, Serbia, Spain, and Switzerland.

Since the ratification of the Brussels convention a number of countries have adhered thereto. The names of the countries, together with the dates of their adherence, follow: Argentine Republic, 1889; Paraquay, 1889; Uruguay, 1889; Poland, 1920; Czechoslovakia, 1921; Rumania, 1923; Dominican Republic, 1923; Hungary, 1923; and Danzig, 1924.

In addition to the governments that have formally joined the convention, many countries exchange their official documents with the United States Government as will be noted from the lists given below:

DEPOSITORIES OF FULL SETS

ARGENTINE REPUBLIC: Ministerio de Relaciones Exteriores, Buenos Aires.
AUSTRALIA: Library of the Commonwealth Parliament, Melbourne.
AUSTRIA: Bundesamt für Statistik, Schwarzenbergstrasse 5, Vienna I.
BADEN: Universitäts-Bibliothek, Freiburg. (Depository of the State of Baden.)
BAVARIA: Staats-Bibliothek, Munich.
BELGIUM: Bibliothèque Royale, Brussels.
BRAZIL: Bibliotheca Nacional, Rio de Janeiro.
BUENOS AIRES: Biblioteca de la Universidad Nacional de La Plata. (Depository of the Province of Buenos Aires.)
CANADA: Library of Parliament, Ottawa.
CHILE: Biblioteca del Congreso Nacional, Santiago.
CHINA: American-Chinese Publication Exchange Department, Shanghai Bureau of Foreign Affairs, Shanghai.
COLOMBIA: Biblioteca Nacional, Bogotá.
COSTA RICA: Oficina de Depósito y Canje Internacional de Publicaciones, San José.
CUBA: Secretaría de Estado (Asuntos Generales y Canje Internacional), Habana.
CZECHOSLOVAKIA: Bibliothèque de l'Assemblée Nationale, Prague.
DENMARK: Kongelige Bibliotheket, Copenhagen.
ENGLAND: British Museum, London.
ESTHONIA: Riigiraamatukogu, Reval.
FRANCE: Bibliothèque Nationale, Paris.
GERMANY: Deutsche Reichstags-Bibliothek, Berlin.
GLASGOW: City Librarian, Mitchell Library, Glasgow.
GREECE: Bibliothèque Nationale, Athens.
HUNGARY: Hungarian House of Delegates, Budapest.
INDIA: Imperial Library, Calcutta.
IRISH FREE STATE: National Library of Ireland, Dublin.
ITALY: Biblioteca Nazionale Vittorio Emanuele, Rome.
JAPAN: Imperial Library of Japan, Tokyo.
LONDON: London School of Economics and Political Science. (Depository of the London County Council.)
MANITOBA: Provincial Library, Winnipeg.
MEXICO: Biblioteca Nacional, Mexico.
NETHERLANDS: Bibliotheek van de Tweede Kamer der Staten-Generaal, The Hague.
NEW SOUTH WALES: Public Library of New South Wales, Sydney.
NEW ZEALAND: General Assembly Library, Wellington.

NORTHERN IRELAND: Ministry of Finance, Belfast.
NORWAY: Universitets-Bibliotek, Christiania. (Depository of the Government of Norway.)
ONTARIO: Legislative Library, Toronto.
PARIS: Préfecture de la Seine.
PERU: Biblioteca Nacional, Lima.
POLAND: Bibliothèque du Ministère des Affaires Etrangères, Warsaw.
PORTUGAL: Bibliotheca Nacional, Lisbon.
PRUSSIA: Preussische Staatsbibliothek, Berlin, N. W. 7.
QUEBEC: Library of the Legislature of the Province of Quebec, Quebec.
QUEENSLAND: Parliamentary Library, Brisbane.
RUSSIA: Shipments temporarily suspended.
SAXONY: Landesbibliothek, Dresden-N.
SOUTH AUSTRALIA: Parliamentary Library, Adelaide.
SPAIN: Servicio del Cambio Internacional de Publicaciones, Cuerpo Facultativo de Archiveros, Bibliotecarios y Arqueólogos, Madrid.
SWEDEN: Kungliga Biblioteket, Stockholm.
SWITZERLAND: Bibliothèque Centrale Fédérale, Berne.
SWITZERLAND: Library of the League of Nations, Palace of Nations, Quai de Leman, Geneva.
TASMANIA: Parliamentary Library, Hobart.
UNION OF SOUTH AFRICA: State Library, Pretoria, Transvaal.
URUGUAY: Oficina de Canje Internacional de Publicaciones, Montevideo.
VENEZUELA: Biblioteca Nacional, Caracas.
VICTORIA: Public Library of Victoria, Melbourne.
WESTERN AUSTRALIA: Public Library of Western Australia, Perth.
WURTTEMBERG: Landesbibliothek, Stuttgart.
YUGOSLAVIA: Ministère des Affaires Etrangères, Belgrade.

DEPOSITORIES OF PARTIAL SETS

ALBERTA: Provincial Library, Edmonton.
ALSACE-LORRAINE: Bibliothèque Universitaire et Régionale de Strasbourg, Strasbourg.
BOLIVIA: Ministerio de Colonización y Agricultura, La Paz.
BRAZIL: Bibliotheca da Assemblea Legislativa do Estado do Rio de Janeiro, Nictheroy.
BREMEN: Senatskommission für Reichs- und Auswärtige Angelegenheiten.
BRITISH COLUMBIA: Legislative Library, Victoria.
BRITISH GUIANA: Government Secretary's Office, Georgetown, Demerara.
BULGARIA: Ministère des Affaires Etrangères, Sofia.
CEYLON: Colonial Secretary's Office (Record Department of the Library), Colombo.
ECUADOR: Biblioteca Nacional, Quito.
EGYPT: Bibliothèque Khédiviale, Cairo.
FINLAND: Central Library of the State, Helsingfors.
GUATEMALA: Secretary of the Government, Guatemala.
HAITI: Secrétaire d'Etat des Relations Extérieures, Port-au-Prince.
HAMBURG: Senatskommission für die Reichs- und Auswärtigen Angelegenheiten.
HESSE: Landesbibliothek, Darmstadt.
HONDURAS: Secretary of the Government, Tegucigalpa.
JAMAICA: Colonial Secretary, Kingston.
LATVIA: Ministry of Foreign Affairs, Riga.

LIBERIA: Department of State, Monrovia.
LOURENÇO MARQUEZ: Government Library, Lourenço Marquez.
LÜBECK: President of the Senate.
MADRAS, PROVINCE OF: Chief Secretary to the Government of Madras, Public Department, Madras.
MALTA: Minister for the Treasury, Valetta.
NEW BRUNSWICK: Legislative Library, Fredericton.
NEWFOUNDLAND: Colonial Secretary, St. John's.
NICARAGUA: Superintendente de Archivos Nacionales, Managua.
NOVA SCOTIA: Provincial Secretary of Nova Scotia, Halifax.
PANAMA: Secretaría de Relaciones Exteriores, Panama.
PARAGUAY: Oficina General de Inmigración, Asuncion.
PRINCE EDWARD ISLAND: Legislative Library, Charlottetown.
RUMANIA: Academia Romana, Bukharest.
SALVADOR: Ministerio de Relaciones Exteriores, San Salvador.
SASKATCHEWAN: Government Library, Regina.
SIAM: Department of Foreign Affairs, Bangkok.
STRAITS SETTLEMENTS: Colonial Secretary, Singapore.
UNITED PROVINCES OF AGRA AND OUDH: Undersecretary to Government, Allahabad.
VIENNA: Bürgermeister-Amt der Stadt Wien.

### INTERPARLIAMENTARY EXCHANGE OF OFFICIAL JOURNAL

The interparliamentary exchange is separate from the exchange of official documents above referred to and is carried on by the Smithsonian Institution in behalf of the United States Government in accordance with a resolution of Congress approved March 4, 1909. This resolution accords with the terms of the second convention concluded at Brussels March 15, 1886, to which the United States was one of the signatories, providing for the immediate exchange of the Official Journal.

During the year the immediate exchange has been entered into with Haiti, Latvia, and Norway. The names of the establishments to which the daily issue of the Congressional Record is mailed are given in the following list:

ARGENTINE REPUBLIC: Biblioteca del Congreso Nacional, Buenos Aires.
AUSTRALIA: Library of the Commonwealth Parliament, Melbourne.
AUSTRIA: Bibliothek des Nationalrates, Wien I.
BADEN: Universitäts-Bibiliothek, Heidelberg.
BELGIUM: Bibliothèque de la Chambre des Représentants, Brussels.
BOLIVIA: Câmara de Diputados, Congreso Nacional, La Paz.
BRAZIL: Bibliotheca do Congresso Nacional, Rio de Janeiro.
BUENOS AIRES: Biblioteca del Senado de la Provincia de Buenos Aires, La Plata.
CANADA:
Library of Parliament, Ottawa.
Clerk of the Senate, Houses of Parliament, Ottawa.
COSTA RICA: Oficina de Depósito y Canje Internacional de Publicaciones, San José.

CUBA:
Biblioteca de la Cámara de Representantes, Habana.
Biblioteca del Senado, Habana.
CZECHOSLOVAKIA: Bibliothèque de l'Assemblée Nationale, Prague.
DENMARK: Rigsdagens Bureau, København.
ESTHONIA: Riigiraamatukogu, Reval.
FRANCE:
Bibliothèque de la Chambre des Députés, au Palais Bourbon, Paris.
Bibliothèque du Sénat, au Palais du Luxembourg, Paris.
GREAT BRITAIN: Library of the Foreign Office, Downing Street, London, S. W. 1.
GREECE: Library of Parliament, Athens.
GUATEMALA: Biblioteca de la Oficina Internacional Centro-Americana, 8a Calle Poniente No. 1, Ciudad de Guatemala.
HAITI: Secrétaire d'Etat des Relations Extérieures, Port-au-Prince.
HONDURAS: Biblioteca del Congreso Nacional, Tegucigalpa.
HUNGARY: Bibliothek des Abgeordnetenhauses, Budapest.
ITALY:
Biblioteca della Camera dei Deputati, Palazzo di Monte Citorio, Rome.
Biblioteca del Senato del Regno, Palazzo Madama, Rome.
LATVIA: Library of the Saeima, Riga.
LIBERIA: Department of State, Monrovia.
NEW SOUTH WALES: Library of Parliament, Sydney.
NEW ZEALAND: General Assembly Library, Wellington.
NORWAY: Stortingets Bibliotek, Christiania.
PERU: Câmara de Diputadoes, Congreso Nacional, Lima.
POLAND: Monsieur le Ministre des Affaires Etrangères, Warsaw.
PORTUGAL: Bibliotheca do Congresso da Republica, Lisbon.
PRUSSIA: Bibliothek des Abgeordnetenhauses, Prinz-Albrechtstrasse 5, Berlin, S. W. 11.
QUEENSLAND: The Chief Secretary's Office, Brisbane.
RUMANIA: Bibliothèque de la Chambre des Députés, Bukharest.
SPAIN:
Biblioteca del Congreso de los Diputados, Madrid.
Biblioteca del Senado, Madrid.
SWITZERLAND:
Bibliothèque de l'Assemblée Fédérale Suisse, Berne.
Library of the League of Nations, Geneva.
TRANSVAAL: State Library, Pretoria.
UNION OF SOUTH AFRICA: Library of Parliament, Cape Town.
URUGUAY: Biblioteca de la Cámara de Representantes, Montevideo.
VENEZUELA: Cámara de Diputados, Congreso Nacional, Caracas.
WESTERN AUSTRALIA: Library of Parliament of Western Australia, Perth.
YUGOSLAVIA: Library of the Skupshtina, Belgrade.

It will be noted from the above list that there are at present 41 different foreign States or Provinces with which the immediate exchange of the Official Journal is carried on. To some of the countries two copies of the Congressional Record are forwarded, one to the upper, and one to the lower house of Parliament. The total number of the Records transmitted is 47. The number provided by law for this exchange is 100.

FOREIGN EXCHANGE AGENCIES

ALGERIA, *via* France.
ANGOLA, *via* Portugal.
ARGENTINE REPUBLIC: Comisión Protectora de Bibliotecas Populares, Calle Córdoba 931, Buenos Aires.
AUSTRIA: Bundesamt für Statistik, Schwarzenbergstrasse 5, Vienna I.
AZORES, *via* Portugal.
BELGIUM: Service Belge des Échanges Internationaux, Rue des Longs-Chariots 46, Brussels.
BOLIVIA: Oficina Nacional de Estadística, La Paz.
BRAZIL: Serviço de Permutações Internacionaes, Bibliotheca Nacional, Rio de Janeiro.
BRITISH COLONIES: Crown Agents for the Colonies, London.
BRITISH GUIANA: Royal Agricultural and Commercial Society, Georgetown.
BRITISH HONDURAS: Colonial Secretary, Belize.
BULGARIA: Institutions Scientifiques de S. M. le Roi de Bulgarie, Sofia.
CANARY ISLANDS, *via* Spain.
CHILE: Servicio de Canjes Internacionales, Biblioteca Nacional, Santiago.
CHINA: American-Chinese Publication Exchange Department, Shanghai Bureau of Foreign Affairs, Shanghai.
CHOSEN: Government General, Keijo.
COLOMBIA: Oficina de Canjes Internacionales y Reparto, Biblioteca Nacional, Bogotá.
COSTA RICA: Oficina de Depósito y Canje Internacional de Publicaciones, San José.
CZECHOSLOVAKIA: Service Tchécoslovaque des Échanges Internationaux, Bibliothèque de l'Assemblée Nationale, Prague 1–79.
DANZIG: Stadtbibliothek, Danzig.
DENMARK: Kongelige Danske Videnskabernes Selskab, Copenhagen.
DUTCH GUIANA: Surinaamsche Koloniale Bibliotheek, Paramaribo.
ECUADOR: Ministerio de Relaciones Exteriores, Quito.
EGYPT: Government Publications Office, Printing Department, Bulaq, Cairo.
ESTHONIA: State Library, Reval.
FINLAND: Delegation of the Scientific Societies of Finland, Helsingfors.
FRANCE: Service Français des Échanges Internationaux, 110 Rue de Grenelle, Paris.
GERMANY: Amerika-Institut, Universitätstrasse 8, Berlin, N. W. 7.
GREAT BRITAIN AND IRELAND: Messrs. Wheldon & Wesley, 2, 3, and 4 Arthur St., New Oxford St., London, W. C. 2.
GREECE: Bibliothèque Nationale, Athens.
GREENLAND, *via* Denmark.
GUATEMALA: Instituto Nacional de Varones, Guatemala.
HAITI: Secrétaire d'Etat des Relations Extérieures, Port au Prince.
HONDURAS: Biblioteca Nacional, Tegucigalpa.
HUNGARY: Hungarian Libraries Board, Budapest.
ICELAND, via Denmark.
INDIA: Superintendent of Stationery, Bombay.
ITALY: Ufficio degli Scambi Internazionali, Biblioteca Nazionale Vittorio Emanuele, Rome.
JAMAICA: Institute of Jamaica, Kingston.
JAPAN: Imperial Library of Japan, Tokyo.
JAVA, *via* Netherlands.

LATVIA: Ministry of Foreign Affairs, Riga.
LIBERIA: Bureau of Exchanges, Department of State, Monrovia.
LITHUANIA: Sent by mail.
LOURENÇO MARQUEZ, *via* Portugal.
LUXEMBURG, *via* Belgium.
MADAGASCAR, *via* France.
MADEIRA, *via* Portugal.
MOZAMBIQUE, *via* Portugal..
NETHERLANDS: Bureau Scientifique Central Néerlandais, Bibliothèque de l'Académie Technique, Delft.
NEW SOUTH WALES: Public Library of New South Wales, Sydney.
NEW ZEALAND: Dominion Museum, Wellington.
NICARAGUA: Ministerio de Relaciones Exteriores, Managua.
NORWAY: Universitets-Bibliotek, Christiania.
PANAMA: Secretaría de Relaciones Exteriores, Panama.
PARAGUAY: Servicio de Canje Internacional de Publicaciones, Secciones Consular y de Comercio, Ministerio de Relaciones Exteriores, Asuncion.
PERU: Oficina de Reparto, Depósito y Canje Internacional de Publicaciones, Ministerio de Fomento, Lima.
POLAND: Bibliothèque du Ministère des Affaires Etrangères, Warsaw.
PORTUGAL: Secção de Trocas Internacionaes, Bibliotheca Nacional, Lisbon.
QUEENSLAND: Bureau of Exchanges of International Publications, Chief Secretary's Office, Brisbane.
RUMANIA: Institutul Meteorologic Central, Ministerul Agriculturei, Bukharest.
RUSSIA: Academy of Sciences, Leningrad.
SALVADOR: Ministerio de Relaciones Exteriores, San Salvador.
SIAM: Department of Foreign Affairs, Bangkok.
SOUTH AUSTRALIA: Public Library of South Australia, Adelaide.
SPAIN: Servicio del Cambio Internacional de Publicaciones, Cuerpo Facultativo de Archiveros, Bibliotecarios y Arqueólogos, Madrid.
SUMATRA, *via* Netherlands.
SWEDEN: Kongliga Svenska Vetenskaps Akademien, Stockholm.
SWITZERLAND: Service Suisse des Échanges Internationaux, Bibliothèque Centrale Fédérale, Berne.
SYRIA: American University of Beirut.
TASMANIA: Secretary to the Premier, Hobart.
TRINIDAD: Royal Victoria Institute of Trinidad and Tobago, Port-of-Spain.
TUNIS, *via* France.
TURKEY: Robert College, Constantinople.
UNION OF SOUTH AFRICA: Government Printing Works, Pretoria, Transvaal.
URUGUAY: Oficina de Canje Internacional de Publicaciones, Montevideo.
VENEZUELA: Biblioteca Nacional, Carácas.
VICTORIA: Public Library of Victoria, Melbourne.
WESTERN AUSTRALIA: Public Library of Western Australia, Perth.
YUGOSLAVIA: Académie Royale Serbe des Sciences et des Arts, Belgrade.

Respectfully submitted.

C. G. ABBOT,
*Assistant Secretary,*
*In Charge of Library and Exchanges.*

Dr. CHARLES D. WALCOTT,
*Secretary, Smithsonian Institution.*

# APPENDIX 6

## REPORT ON THE NATIONAL ZOOLOGICAL PARK

SIR: I have the honor to submit the following report on the operations of the National Zoological Park for the fiscal year ending June 30, 1924:

The appropriation made by Congress for the regular maintenance of the park was the same as for the preceding year, $125,000. The bill providing for printing and binding, Smithsonian Institution, contained an additional allotment of $300 for the National Zoological Park.

The year has been one of the most successful in the history of the park, both as to care and maintenance of the buildings, grounds, and collections, and in service to the public. In addition to many minor improvements, a new restaurant building has been completed. This was in operation before the close of the year; and the cleanly, roomy, open refreshment room and sanitary serving quarters have been greatly appreciated by visitors. The collection is beyond doubt of far greater value and scientific interest than ever before, and has been kept in excellent condition, with low rate of loss. All previous attendance records have been broken, and a total of 2,442,880 visitors was recorded for the year.

### ACCESSIONS

*Gifts.*—Altogether, 221 animals were presented to the park, or placed on indefinite deposit, during the year. A most notable accession was a fine young Baird's tapir, presented by Mr. M. G. Henery, of Puerto Castillo, Honduras, and obtained through the interest of Dr. Wm. M. Mann. Baird's tapir has always been one of the rarest animals in captivity and the only specimen ever before in the National Zoological Park was a young animal exhibited for a short time 24 years ago. Three species of tapirs are now living in the park, a most unusual record for any zoological garden. Mr. Henery is to be congratulated on his notable achievement in adding this unusual animal to the national collections.

Mr. Victor J. Evans, of Washington, D. C., who has taken a great interest in the National Zoological Park for many years, continued his contributions of carefully selected animals of the rarer and more

unusual varieties. Among the specimens received from him during the last year were such valuable species as the agile gibbon, gelada baboon, Tasmanian devil, crimson-winged paroquet, Australian catbird, and long-necked turtle. Altogether, Mr. Evans contributed 55 animals to the park during the year.

A most interesting collection from Brazil was brought to the park by Dr. W. L. Schurz, commercial attaché, United States Embassy, Rio de Janeiro. This collection included a fine South American bush dog (*Icticyon venaticus*), the first of its kind to be exhibited in the park. There were also an ocelot, capybara, coatimundi, and several birds. The bush dog is an exceedingly rare species in collections.

The Canadian Government, through Hon. J. B. Harkin, Commissioner of Dominion Parks, presented a male yak and two female Rocky Mountain sheep from Banff, Alberta; and the State Fish and Game Commission of Utah, through Hon. D. H. Madsen, contributed four beavers and a notable collection of wild ducks, including six different species.

The complete list of gifts for the year, from 77 individual donors, is as follows:

Mr. E. J. Abernethy, Connelly Springs, N. C., great horned owl.

Capt. Frank Vans Agnew, Peten, Guatemala, ocelot.

Hon. Henry D. Baker, Trinidad, British West Indies, 2 tree porcupines and 2 blue-and-yellow macaws.

Mr. H. S. Barber, Washington, D. C., copperhead.

Mrs. B. W. Barton, Baltimore, Md., cockateel.

Dr. Paul Bartsch, Washington, D. C., chuck-wills-widow and 2 Bahama rock iguanas.

Mr. Oscar E. Bayard, Orlando, Fla., 2 caracaras.

Mr. L. G. Beerbower, Terra Alta, W. Va., great blue heron.

Mr. John M. C. Betts, Takoma Park, Md., 2 alligators.

Mrs. W. O. Biggs, Washington, D. C., ocelot.

Mr. Albert A. Breeden, Manassas, Va., Virginia opossum.

Mrs. C. M. Buck, Washington, D. C., double yellow-head parrot.

Canadian Government, through Hon. J. B. Harkin, yak and 2 Rocky Mountain sheep.

Mrs. E. B. Chapman, Washington, D. C., mallard.

Mr. Austin H. Clark, Washington, D. C., canary.

Mr. G. W. Clarke, Washington, D. C., Cooper's hawk.

Mrs. J. L. Conn, Washington, D. C., orange-winged parrot.

Hon. Calvin Coolidge, White House, Washington, D. C., black bear and peafowl.

Mr. T. E. Counts, Manassas, Va., Virginia opossum.

Mrs. J. H. Cummings, Wilmington, N. C., coachwhip snake, corn snake, and 2 glass snakes.

Mr. Charles F. Denley, Glenmont, Md., 3 vulturine guinea fowls.

Mr. C. S. East, Washington, D. C., copperhead.

Mr. Joseph Edgal, Washington, D. C., 2 domestic rabbits.

Mr. Victor J. Evans, Washington, D. C., agile gibbon, gelada baboon, 2 Tasmanian devils, sulphur-crested cockatoo, Pennant's paroquet, crimson-

winged paroquet, 2 grass paroquets, severe macaw, 2 musk lorikeets, Australian catbird, shining starling, 2 red-faced Gouldian finches, black-faced Gouldian finch, 5 diamond finches, 3 zebra finches, 4 St. Helena waxbills, rosy-rumped finch, 5 chestnut-breasted finches, 2 red-headed finches, 2 paradise whydahs, African wood hoopoe, Australian thick-knee, 2 crowned pigeons, long-necked turtle, stump-tailed lizard, 2 blue-tongued lizards, 4 water dragons, and 4 Australian skinks.

Mr. Edward S. Fuller, Washington, D. C., loon.

Mr. W. B. Gardner, Charleston, W. Va., banded rattlesnake.

Mr. F. W. Goding, Guayaquil, Ecuador, snowy egret.

Mr. C. W. Good, Washington, D. C., muskrat.

Mrs. George W. Harrington, Richmond, Va., patas monkey and white-throated capuchin.

Mrs. A. F. Hassan, Washington, D. C., horned toad.

Mr. T. M. Haston, Davenport, Fla., alligator.

Mr. M. G. Henery, Puerto Castillo, Honduras, Baird's tapir.

Mr. T. P. Lovering, Wilmington, N. C., copperhead and coachwhip snake.

Dr. M. W. Lyon, South Bend, Ind., Franklin's spermophile.

Hon. D. H. Madsen, State Fish and Game Commission, Salt Lake City, Utah, 4 beavers, green-winged teal, shoveller, 2 redheads, 3 mallards, 8 baldpates, and 11 pintails.

Dr. Wm. M. Mann, Washington, D. C., Mexican spider monkey and 2 Honduras squirrels.

Mr. D. W. May, Mayaguez, Porto Rico, 2 Jamaica red-tailed hawks.

Mr. F. H. McHaffie, Wevaco, W. Va., 2 banded rattlesnakes.

Mrs. F. M. McQuade, Washington, D. C., double yellow-head parrot.

Mr. Andrew Miller, Washington, D. C., red-crowned parrot.

Mr. C. E. Mirguet, Rochester, N. Y., banded rattlesnake and 2 blacksnakes.

Mrs. G. W. Morey, Chevy Chase, Md., red-tailed hawk.

Mr. Walter C. B. Morse, Washington, D. C., orange-winged parrot and mealy parrot.

Mrs. W. P. Norfolk, Baltimore, Md., titi monkey.

Mr. Thos. J. Nutt, Somerville, Mass., green guenon.

Mr. Edward O'Connell, Washington, D. C., red fox.

Mr. W. L. O'Neil, Mount Ida, Va., 2 ring-necked pheasants.

Mr. J. Patten, Washington, D. C., woodchuck.

Mr. Jesse Pawling, Washington, D. C., cooter.

Mr. W. Robert Perkins, Washington, D. C., 2 alligators.

Mr. E .R. Picard, Wilmington, N. C., banded rattlesnake.

Mrs. H. E. Read, Washington, D. C., 2 tovi paroquets.

Maj. A. D. Rorex, Portsmouth, N. H., Santo Domingo parrot.

Mr. R. H. Sargent, Washington, D. C., 2 alligators.

Mr. E. S. Schmid, Washington, D. C., barred owl.

Dr. A. H. Schultz, Baltimore, Md., brown pelican.

Mr. W. L. Schurz, Rio de Janeiro, Brazil, bush dog, ocelot, capybara, gray coatimundi, red-billed toucan, red-and-blue-and-yellow macaw, and 3 blue-and-yellow macaws.

Mrs. W. F. Scruggs, Martinsburg, W. Va., Cuban parrot.

Mr. Asa A. Sheetz, Woodstock, Va., rough green snake.

Dr. R. W. Shufeldt and Mr. James S. Jester, Washington, D. C., 2 water snakes and 2 garter snakes.

Mr. J. H. Smith, Washington, D. C., orange-winged parrot.

Messrs. Sneeden and Davis, Wilmington, N. C., king snake, chicken snake, blacksnake, and spreading adder.

Mrs. G. A. Somerville, Washington, D. C., bob white.

Mr. P. C. Standley and Dr. W. M. Mann, Washington, D. C., Allen's opossum, Panama agouti, 10 tovi paroquets, and loggerhead turtle.

Mrs. Robert B. Stiles, Petersburg, Va., white-throated capuchin.

Mrs. W. W. Stuart, Washington, D. C., white-throated capuchin.

Mr. Landon Thomas, Augusta, Ga., blue-and-yellow macaw.

Mr. J. E. Tyler, Washington, D. C., 3 alligators.

Mr. Allen W. Underwood, Washington, D. C., 2 ringed turtledoves.

Mr. Frank Upsham, Washington, D. C., alligator.

Mr. J. S. Warmbath, Washington, D. C., Virginia opossum and 2 great horned owls.

Mrs. Garret Watson, Washington, D. C., double yellow-headed parrot.

Mr. J. E. White, Snowden, N. C., whistling swan.

Mrs. Grace Wilkinson, Washington, D. C., Cuban parrot.

Mr. Charles M. Willoughby, Washington, D. C., 2 European foxes.

Mr. R. W. Wilson, Glen Echo, Md., California coyote.

Mr. E. F. Wood, Washington, D. C., red fox.

*Births.*—During the year 42 mammals were born and 27 birds were hatched in the park. These records, as in former reports, include only such as are reared to a reasonable age, no account being made in these published statistics of young that live only a few days. Mammals born include: Mexican puma, 2; lion, 2; dingo, 2; gray wolf, 6; Rocky Mountain sheep, 1; mouflon, 1; aoudad, 1; tahr, 2; American bison, 2; reindeer, 2; Japanese deer, 3; hog deer, 2; fallow deer, 2; red deer, 5; guanaco, 1; Trinidad agouti, 3; rhesus monkey, 1; Javan macaque, 1; red kangaroo, 1; rufous-bellied wallaby, 1; brush-tailed rock wallaby, 1. Birds hatched were of the following species: Blue goose, black duck, wood duck, Australian ibis, black-crowned night heron, and grass paroquet.

Twin monkeys were born for the first time in the records of the park, but one of the young lived only a few days. The species was *Macaca rhesus.* The breeding of the blue goose (*Chen cærulescens*) is a notable achievement, of which the keepers in the bird division may well be proud. The young of this bird have never before been reared, and only once before, so far as is known, has the species nested in captivity.

*Exchanges.*—A number of desirable animals were received in exchange for surplus stock. These included 12 mammals, 60 birds, and 4 reptiles. Among the especially noteworthy accessions in this class are a young black rhinoceros and a leopard from Africa, 5 reindeer from Norway, and 2 San Geronimo harbor seals from Lower California. Birds received in exchange include a kiwi (*Apteryx mantelli*), which, with a number of other rare species, came from the Wellington, New Zealand, Zoological Gardens in exchange for some American animals. There were also received in exchange

a trumpeter swan, a wedge-tailed eagle, and numbers of other waterfowl and cage birds.

*Purchases.*—Only 9 mammals, 81 birds, and 8 reptiles were purchased during the year. Special mention should be made, however, of a pair of Alpine ibex, from Europe, 10 Marquesas Islands doves, 2 bleeding-heart doves, 12 white-cheeked geese, 2 pink-footed geese, 2 Massena quail, and a gannet. All of these unusual species are doing well in the park.

*Transfers.*—The Biological Survey, United States Department of Agriculture, transferred to the National Zoological Park a number of especially desirable animals taken by field agents of the bureau or seized by United States game wardens in discharge of their duties. Of particular interest during the year were a black bear from Oregon, 2 pacas from Central America, a black-footed ferret from Nebraska, 2 white-cheeked geese from Alaska, 2 whistling and 2 mute swans. Altogether, the Biological Survey contributed 7 mammals and 11 birds during the year.

*Deposits.*—Among the few animals received on deposit are two parrots rarely shown in this country. These are the Philippine cockatoo and the Philippine green parrot, both new to the records of the park.

### SPECIES NEW TO THE COLLECTION

An unusual number of animals new to the park records were received during the year. A list of the 40 species thus exhibited for the first time follows:

Allen's opossum—*Metachirops opossum fuscogriseus.*
California coyote—*Canis ochropus.*
European fox—*Vulpes vulpes.*
Bush dog—*Icticyon venaticus.*
San Geronimo harbor seal—*Phoca richardii geronimensis.*
Franklin's spermophile—*Citellus franklinii.*
Tree porcupine—*Coendou prehensilis.*
Gray titi monkey—*Callicebus gigot.*
Agile gibbon—*Hylobates lar.*
Alpine ibex—*Capra ibex.*
Black rhinoceros—*Diceros bicornis.*
White-cheeked goose—*Branta canadensis occidentalis.*
Pink-footed goose—*Anser brachyrhynchus.*
Jamaica redtail—*Buteo borealis jamaicensis.*
Vulturine guinea fowl—*Acryllium vulturinum.*
Pukeko—*Porphyrio stanleyi.*
Large-billed thick-knee—*Burhinus magnirostris.*
Philippine cockatoo—*Kakatoe hæmaturopygia.*
Crimson-winged parrot—*Aprosmictus erythropterus.*
Philippine green parrot—*Tanygnathus lucionensis.*
Musk lorikeet—*Glossopsitta concinna.*
Chuck-will's-widow—*Antrostomus carolinensis.*
Morepork owl—*Spiloglaux novæseelandiæ.*

Red-billed toucan—*Ramphastos monilis.*
African wood hoopoe—*Irrisor erythrorhynchus.*
Red-eared bulbul—*Otocompsa jocosa.*
Mistle thrush—*Turdus viscivorus.*
Australian catbird—*Ailurœdus viridis.*
Rosy-rumped waxbill—*Estrilda rhodopyga.*
Red-headed finch—*Amadina erythrocephala.*
Yellow-tailed oriole—*Icterus mesomelas.*
Gray singing finch—*Serinus leucopygius.*
Leclancher's nonpareil—*Passerina leclancheri.*
Bahama rock iguana—*Cyclura rileyi.*
Water dragon—*Physignathus lesueurii.*
Australian skink—*Egerina cunninghamei.*
Western bull snake—*Pituophis catenifer.*
Beaded snake—*Drymobius margaritiferus.*
Mexican musk turtle—*Kinosternon sonoriense.*
Long-necked turtle—*Chelodina longicollis.*

REMOVALS

There were sent away in exchange to other zoological gardens during the year, 75 surplus animals, including 41 mammals, 31 birds, and 3 reptiles. Among these were the following mammals born and reared in the park: European brown bear, 3; raccoon, 4; llama, 1; tahr, 1; yak, 2; Japanese deer, 9; red kangaroo, 1; rufous-bellied wallaby, 3. In addition to these, 26 gray squirrels were sent to Quantico, Va., for stocking the United States Marine Corps reservation at that place, and 21 squirrels were sent to the military reservation at Fort Hayes, Columbus, Ohio.

A number of animals on deposit were returned to owners.

Although the death rate has been held at a normally low mark, there have been, as in all years, a few serious losses of animals. Some records of interest because of the long periods of life in the park are as follows: A sacred ibis (*Threskiornis æthiopicus*) received September 25, 1903, died October 20, 1923, after 20 years and 25 days in the collection. An East African leopard, female, which was presented to the park by Mr. W. N. McMillan, and arrived in Washington December 19, 1909, died 14 years and 4 days later on December 23, 1923. A boatbill heron (*Cochlearius cochlearius*) received September 28, 1910, died on December 11, 1923, after 13 years 2 months and 13 days in the park. A female Mexican agouti (*Dasyprocta mexicana*) received July 7, 1910, died August 28, 1923, having lived in the park for 13 years 1 month and 21 days. A female American elk (*Cervus canadensis*) born in the park on June 5, 1910, died August 10, 1923, at an age of 13 years 2 months and 5 days. A northern wild cat (*Lynx uinta*), male, received January 15, 1912, died 11 years 9 months and 13 days later, on October 28, 1923.

A male white stork (*Ciconia ciconia*) received August 12, 1912, died April 26, 1924, after 11 years 8 months and 5 days in the park. A female tayra (*Tayra barbara*) received September 8, 1914, died on March 20, 1924, from pericarditis, after a life of 9 years 6 months and 12 days in the collection.

Other serious losses by death during the year were a Malay sun bear, congestion of lungs, August 12, 1923; agile gibbon, pneumonia, January 11, 1924; orang-utan, late rickets, February 15, 1924; and a South American tapir, intussusception of small intestine, February 19, 1924.

Post-mortem examinations were made in most cases by the pathological division of the Bureau of Animal Industry; but five examinations were made by Dr. Adolph H. Schultz, of the Carnegie Institution, Laboratory of Embryology; and one was made at St. Elizabeths Hospital, Department of the Interior.

The following list shows the results of autopsies, the cases being arranged by groups:

CAUSES OF DEATH

MAMMALS

Marsupialia: Peritonitis, 1.

Carnivora: Pneumonia, 2; congestion of lungs, 2; enteritis, 1; gastroenteritis, 2; pericarditis, 1; no cause found, 1.

Rodentia: Pneumonia and pericarditis, 1; multiple tumors of lungs, 1; gastroenteritis, 1; roundworm infestation, 1.

Primates: Pneumonia, 1; congestion of lungs, 1; tuberculosis, 2; enteritis, 4; stenosis of intestine, 1; hepatitis, 1; late rickets, 1; no cause found, 2.

Artiodactyla: Gastritis, 1; anemia, 2.

Perissodactyla: Intussusception of small intestine, 1.

Edentata: Gastritis, 1.

BIRDS

Colymbiformes: Aspergillosis, 1.

Ciconiiformes: Diphtheria, 1; internal hemorrhage, 1; anemia, 1.

Anseriformes: Pneumonia, 1; tuberculosis, 1; aspergillosis, 2; colibacillosis, 1.

Galliformes: Colibacillosis, 2; intestinal sarcoma, 1.

Gruiformes: Tuberculosis, 1; enteritis, 2; no cause found, 1.

Charadriiformes: Enteritis, 2; no cause found, 1.

Cuculiformes: No cause found, 1.

Psittaciformes: General cachexia, 1; accident, 2.

Passeriformes: Tæniasis, 1; no cause found, 1.

All specimens of special scientific value needed by the United States National Museum were transferred after death to that institution. These included, during the year, 21 mammals, 50 birds, and 15 reptiles. A number of rare birds' eggs were also sent to the Museum.

Five mammals especially needed by the Carnegie Laboratory of Embryology, Johns Hopkins Medical School, Baltimore, were sent after death to that institution; and one mammal was sent to St. Elizabeths Hospital, Washington, D. C., for special study of the brain. A few skins of cage birds were saved for the reference collection at the park.

## ANIMALS IN THE COLLECTION JUNE 30, 1924

### MAMMALS

#### MARSUPIALIA

| | |
|---|---|
| Allen's opossum (*Metachirops opossum fuscogriseus*) | 1 |
| Virginia opossum (*Didelphis virginiana*) | 4 |
| Tasmanian devil (*Sarcophilus harrisii*) | 2 |
| Australian opossum (*Trichosurus vulpecula*) | 2 |
| Flying phalanger (*Petaurus breviceps*) | 7 |
| Brush-tailed rock wallaby (*Petrogale penicillata*) | 3 |
| Rufous-bellied wallaby (*Macropus billardierii*) | 5 |
| Wallaroo (*Macropus robustus*) | 2 |
| Great gray kangaroo (*Macropus giganteus*) | 2 |
| Red kangaroo (*Macropus rufus*) | 6 |
| Wombat (*Phascolomys mitchelli*) | 1 |

#### CARNIVORA

| | |
|---|---|
| Kadiak bear (*Ursus middendorffi*) | 2 |
| Alaska Peninsula bear (*Ursus gyas*) | 4 |
| Yakutat bear (*Ursus dalli*) | 1 |
| Kidder's bear (*Ursus kidderi*) | 2 |
| European bear (*Ursus arctos*) | 2 |
| Grizzly bear (*Ursus horribilis*) | 1 |
| Apache grizzly (*Ursus apache*) | 1 |
| Himalayan bear (*Ursus thibetanus*) | 1 |
| Black bear (*Ursus americanus*) | 3 |
| Cinnamon bear (*Ursus americanus cinnamomum*) | 2 |
| Glacier bear (*Ursus emmonsii*) | 1 |
| Sloth bear (*Melursus ursinus*) | 1 |
| Polar bear (*Thalarctos maritimus*) | 2 |
| Dingo (*Canis dingo*) | 3 |
| Gray wolf (*Canis nubilus*) | 10 |
| Timber wolf (*Canis occidentalis*) | 1 |
| Texas red wolf (*Canis rufus*) | 1 |
| Coyote (*Canis latrans*) | 3 |
| California coyote (*Canis ochropus*) | 1 |
| Red fox (*Vulpes fulva*) | 4 |
| European fox (*Vulpes vulpes*) | 1 |
| Kit fox (*Vulpes velox*) | 2 |
| Great-eared fox (*Otocyon megalotis*) | 1 |
| Gray fox (*Urocyon cinereoargenteus*) | 2 |
| Bush dog (*Icticyon venaticus*) | 1 |
| Panda (*Ailurus fulgens*) | 1 |
| Raccoon (*Procyon lotor*) | 6 |
| Florida raccoon (*Procyon lotor elucus*) | 2 |
| Gray coatimundi (*Nasua narica*) | 2 |
| Red coatimundi (*Nasua nasua*) | 1 |
| Kinkajou (*Potos flavus*) | 3 |
| Mexican kinkajou (*Potos flavus azтecus*) | 1 |
| Tayra (*Tayra barbara*) | 1 |
| American badger (*Taxidea taxus*) | 1 |
| Florida otter (*Lutra canadensis vaga*) | 3 |
| Black-footed ferret (*Mustela nigripes*) | 1 |
| Palm civet (*Paradoxurus hermaphroditus*) | 2 |
| Aard-wolf (*Proteles cristatus*) | 1 |
| Spotted hyena (*Crocuta crocuta*) | 1 |
| Striped hyena (*Hyæna hyæna*) | 1 |
| African cheetah (*Acinonyx jubatus*) | 2 |
| Lion (*Felis leo*) | 7 |
| Bengal tiger (*Felis tigris*) | 1 |
| Manchurian tiger (*Felis tigris longipilis*) | 2 |
| Leopard (*Felis pardus*) | 2 |
| Jaguar (*Felis onca*) | 1 |
| Brazilian ocelot (*Felis pardalis brasiliensis*) | 2 |
| Snow leopard (*Felis uncia*) | 1 |
| Mexican puma (*Felis azteca*) | 4 |
| Mountain lion (*Felis hippolestes*) | 1 |
| Canada lynx (*Lynx canadensis*) | 1 |
| Northern wild cat (*Lynx uinta*) | 1 |
| Bay lynx (*Lynx rufus*) | 3 |
| Clouded leopard (*Neofelis nebulosa*) | 1 |

#### PINNIPEDIA

| | |
|---|---|
| California sea lion (*Zalophus californianus*) | 2 |
| San Geronimo harbor seal (*Phoca richardii geronimensis*) | 1 |

#### RODENTIA

| | |
|---|---|
| Woodchuck (*Marmota monax*) | 3 |
| Dusky marmot (*Marmota flaviventris obscura*) | 1 |
| Franklin's spermophile (*Citellus franklinii*) | 1 |
| Chipmunk (*Eutamias neglectus*) | 1 |
| Honduras squirrel (*Sciurus boothiæ*) | 2 |
| Albino squirrel (*Sciurus carolinensis*) | 2 |
| Bailey's pocket mouse (*Perognathus baileyi*) | 1 |

American beaver (*Castor canadensis*) 2
Grasshopper mouse (*Onychomys leucogaster*) 3
Muskrat (*Fiber zibethicus*) 1
African porcupine (*Hystrix africæaustralis*) 1
Malay porcupine (*Acanthion brachyurum*) 2
Tree porcupine (*Coendou prehensilis*) 2
Mexican tree porcupine (*Coendou mexicanum*) 1
Coypu (*Myocastor coypus*) 1
Central American paca (*Cuniculus paca virgatus*) 3
Sooty agouti (*Dasyprocta fuliginosa*) 1
Speckled agouti (*Dasyprocta punctata*) 2
Panama agouti (*Dasyprocta punctata isthmica*) 2
Azara's agouti (*Dasyprocta azaræ*) 1
Trinidad agouti (*Dasyprocta rubrata*) 5
Yellow-rumped agouti (*Dasyprocta lucifer cayennæ*) 1
Guinea pig (*Cavia porcellus*) 2
Capybara (*Hydrochœrus hydrochœris*) 2

LAGOMORPHA

Domestic rabbit (*Oryctolagus cuniculus*) 17

EDENTATA

Nine-banded armadillo (*Dasypus novemcinctus*) 3

PRIMATES

Gray spider monkey (*Ateles geoffroyi*) 2
Mexican spider monkey (*Ateles neglectus*) 1
White-throated capuchin (*Cebus capucinus*) 6
Weeping capuchin (*Cebus apella*) 2
Brown capuchin (*Cebus fatuellus*) 1
Gelada baboon (*Theropithecus obscurus*) 1
Chacma (*Papio porcarius*) 1
Anubis baboon (*Papio cynocephalus*) 1
East African baboon (*Papio ibeanus*) 1
Mandrill (*Papio sphinx*) 1
Drill (*Papio leucophæus*) 1
Moor macaque (*Cynopithecus maurus*) 1
Barbary ape (*Simia sylvanus*) 2
Japanese macaque (*Macaca fuscata*) 2
Pig-tailed monkey (*Macaca nemestrina*) 1
Burmese macaque (*Macaca andamanensis*) 1
Rhesus monkey (*Macaca rhesus*) 21
Crab-eating macaque (*Macaca irus*) 1
Javan macaque (*Macaca mordax*) 5
Black mangabey (*Cercocebus aterrimus*) 1
Sooty mangabey (*Cercocebus fuliginosus*) 2
Hagenbeck's mangabey (*Cercocebus hagenbecki*) 1
White-collared mangabey (*Cercocebus torquatus*) 1
Patas monkey (*Erythrocebus patas*) 1
Green guenon (*Lasiopyga callitrichus*) 3
Vervet guenon (*Lasiopyga pygerythra*) 1
Mona (*Lasiopyga mona*) 4
Roloway guenon (*Lasiopyga roloway*) 1
Chimpanzee (*Pan satyrus*) 1

ARTIODACTYLA

Wild boar (*Sus scrofa*) 1
Wart hog (*Phacochœrus æthiopicus*) 1
Collared peccary (*Pecari angulatus*) 2
Hippopotamus (*Hippopotamus amphibius*) 2
Bactrian camel (*Camelus bactrianus*) 2
Arabian camel (*Camelus dromedarius*) 1
Guanaco (*Lama guanicoe*) 4
Llama (*Lama glama*) 6
Reindeer (*Rangifer tarandus*) 7
Fallow deer (*Dama dama*) 7
Axis deer (*Axis axis*) 3
Hog deer (*Hyelaphus porcinus*) 5
Sambar (*Rusa unicolor*) 2
Barasingha (*Rucervus duvaucelii*) 6
Burmese deer (*Rucervus eldii*) 1
Japanese deer (*Sika nippon*) 13
Red deer (*Cervus elaphus*) 17
Kashmir deer (*Cervus hanglu*) 2
Bedford deer (*Cervus xanthopygus*) 6
American elk (*Cervus canadensis*) 5
Virginia deer (*Odocoileus virginianus*) 6
Panama deer (*Odocoileus chiriquensis*) 1
Black-tailed deer (*Odocoileus columbianus*) 2
Blesbok (*Damaliscus albifrons*) 2
White-tailed gnu (*Connochætes gnou*) 1
Brindled gnu (*Connochætes taurinus*) 1
Lechwe (*Onotragus leche*) 1
Sable antelope (*Egocerus niger*) 1
Indian antelope (*Antilope cervicapra*) 3
Nilgai (*Boselaphus tragocamelus*) 2
East African eland (*Taurotragus oryx livingstonii*) 2
Mountain goat (*Oreamnos americanus*) 5
Tahr (*Hemitragus jemlahicus*) 6
Alpine ibex (*Capra ibex*) 2
Goat (*Capra hircus*) 1
Aoudad (*Ammotragus lervia*) 3
Rocky Mountain sheep (*Ovis canadensis*) 7
Arizona mountain sheep (*Ovis canadensis gaillardi*) 1
Mouflon (*Ovis musimon*) 3
Barbados sheep (*Ovis aries*) 1
Greenland musk-ox (*Ovibos moschatus wardi*) 2
Zebu (*Bos indicus*) 1
Yak (*Poëphagus grunniens*) 4
American bison (*Bison bison*) 15
Indian buffalo (*Bubalus bubalis*) 3

PERISSODACTYLA

| | |
|---|---|
| Black rhinoceros (*Diceros bicornis*) | 1 |
| Malay tapir (*Tapirus indicus*) | 1 |
| Brazilian tapir (*Tapirus terrestris*) | 1 |
| Baird's tapir (*Tapirella bairdii*) | 1 |
| Grant's zebra (*Equus quagga granti*) | 1 |
| Grevy's zebra (*Equus grevyi*) | 1 |
| Zebra-horse hybrid (*Equus grevyi caballus*) | 1 |
| Zebra-ass hybrid (*Equus grevyi asinus*) | 1 |

PROBOSCIDEA

| | |
|---|---|
| Abyssinian elephant (*Loxodonta africana oxyotis*) | 1 |
| Sumatran elephant (*Elephas sumatranus*) | 2 |

## BIRDS

RATITÆ

| | |
|---|---|
| South African ostrich (*Struthio australis*) | 5 |
| Somaliland ostrich (*Struthio molybdophanes*) | 2 |
| Nubian ostrich (*Struthio camelus*) | 1 |
| Rhea (*Rhea americana*) | 1 |
| Sclater's cassowary (*Casuarius philipi*) | 1 |
| Emu (*Dromiccius novæhollandiæ*) | 2 |
| Kiwi (*Apteryx mantelli*) | 1 |

CICONIIFORMES

| | |
|---|---|
| American white pelican (*Pelecanus erythrorhynchos*) | 7 |
| European white pelican (*Pelecanus onocrotalus*) | 2 |
| Roseate pelican (*Pelecanus roseus*) | 2 |
| Australian pelican (*Pelecanus conspicillatus*) | 2 |
| Brown pelican (*Pelecanus occidentalis*) | 8 |
| Florida cormorant (*Phalacrocorax auritus floridanus*) | 4 |
| Gannet (*Sula bassana*) | 2 |
| Great white heron (*Ardea occidentalis*) | 2 |
| Great blue heron (*Ardea herodias*) | 1 |
| Goliath heron (*Ardea goliath*) | 1 |
| American egret (*Casmerodius egretta*) | 2 |
| Black-crowned night heron (*Nycticorax nycticorax nævius*) | 49 |
| White stork (*Ciconia ciconia*) | 1 |
| Black stork (*Ciconia nigra*) | 1 |
| Lesser adjutant (*Leptoptilus javanicus*) | 1 |
| Wood ibis (*Mycteria americana*) | 2 |
| Straw-necked ibis (*Carphibis spinicollis*) | 1 |
| Sacred ibis (*Threskiornis æthiopicus*) | 2 |
| Black-headed ibis (*Threskiornis melanocephalus*) | 3 |
| Australian ibis (*Threskiornis strictipennis*) | 4 |
| White ibis (*Guara alba*) | 10 |
| Scarlet ibis (*Guara rubra*) | 4 |
| European flamingo (*Phœnicopterus roseus*) | 1 |

ANSERIFORMES

| | |
|---|---|
| Mallard (*Anas platyrhynchos*) | 12 |
| Black duck (*Anas rubripes*) | 15 |
| Australian black duck (*Anas superciliosa*) | 2 |
| Gadwall (*Chaulelasmus streperus*) | 2 |
| Falcated duck (*Eunetta falcata*) | 2 |
| European widgeon (*Mareca penelope*) | 4 |
| Baldpate (*Mareca americana*) | 10 |
| Green-winged teal (*Nettion carolinense*) | 11 |
| European teal (*Nettion crecca*) | 4 |
| Baikal teal (*Nettion formosum*) | 6 |
| Blue-winged teal (*Querquedula discors*) | 1 |
| Garganey (*Querquedula querquedula*) | 6 |
| Shoveller (*Spatula clypeata*) | 5 |
| Pintail (*Dafila acuta*) | 16 |
| Wood duck (*Aix sponsa*) | 10 |
| Mandarin duck (*Dendronessa galericulata*) | 12 |
| Canvasback (*Marila valisineria*) | 12 |
| European pochard (*Marila ferina*) | 3 |
| Redhead (*Marila americana*) | 11 |
| Ring-necked duck (*Marila collaris*) | 2 |
| Tufted duck (*Marila fuligula*) | 1 |
| Lesser scaup duck (*Marila affinis*) | 3 |
| Greater scaup duck (*Marila marila*) | 9 |
| Rosy-billed pochard (*Metopiana peposaca*) | 4 |
| Egyptian goose (*Chenalopex ægyptiacus*) | 3 |
| Upland goose (*Chloëphaga leucoptera*) | 1 |
| Hawaiian goose (*Nesochen sandvicensis*) | 2 |
| Snow goose (*Chen hyperboreus*) | 1 |
| Greater snow goose (*Chen hyperboreus nivalis*) | 2 |
| Blue goose (*Chen cærulescens*) | 10 |
| White-fronted goose (*Anser albifrons*) | 2 |
| American white-fronted goose (*Anser albifrons gambeli*) | 3 |
| Bean goose (*Anser fabalis*) | 2 |
| Pink-footed goose (*Anser brachyrhynchus*) | 2 |
| Bar-headed goose (*Eulabeia indica*) | 2 |
| Canada goose (*Branta canadensis*) | 8 |
| Hutchins's goose (*Branta canadensis hutchinsii*) | 6 |
| White-cheeked goose (*Branta canadensis occidentalis*) | 14 |
| Cackling goose (*Branta canadensis minima*) | 2 |
| Brant (*Branta bernicla glaucogastra*) | 10 |
| Barnacle goose (*Branta leucopsis*) | 5 |

Spur-winged goose (*Plectropterus gambensis*) 1
Muscovy duck (*Cairina moschata*) 1
Pied goose (*Anseranas semipalmata*) 2
Black-bellied tree duck (*Dendrocygna autumnalis*) 5
Eyton's tree duck (*Dendrocygna eytoni*) 4
Mute swan (*Cygnus gibbus*) 4
Trumpeter swan (*Olor buccinator*) 1
Whistling swan (*Olor columbianus*) 1
Black swan (*Chenopis atrata*) 2

FALCONIFORMES

California condor (*Gymnogyps californianus*) 3
Turkey vulture (*Cathartes aura*) 3
Black vulture (*Coragyps urubu*) 1
King vulture (*Sarcoramphus papa*) 2
Secretary bird (*Sagittarius serpentarius*) 1
Griffon vulture (*Gyps fulvus*) 1
African black vulture (*Torgos tracheliotus*) 1
Cinereous vulture (*Aegypius monachus*) 2
Caracara (*Polyborus cheriway*) 4
Wedge-tailed eagle (*Uroaëtus audax*) 2
Golden eagle (*Aquila chrysaëtos*) 5
White-bellied sea eagle (*Cuncuma leucogaster*) 2
Bald eagle (*Haliæetus leucocephalus*) 7
Alaskan bald eagle (*Haliæetus leucocephalus alascanus*) 3
Broad-winged hawk (*Buteo platypterus*) 1
Red-tailed hawk (*Buteo borealis*) 7
Jamaica redtail (*Buteo borealis jamaicensis*) 1
Sparrow hawk (*Falco sparverius*) 4

GALLIFORMES

Curassow (*Crax daubentoni*) 1
Razor-billed curassow (*Mitu mitu*) 2
Penelope (*Penelope boliviana*) 1
Guan (*Ortalis albiventris*) 1
Chachalaca (*Ortalis vetula*) 1
Vulturine guinea fowl (*Acryllium vulturinum*) 3
Peafowl (*Pavo cristatus*) 18
Peacock pheasant (*Polyplectron bicalcaratum*) 1
Silver pheasant (*Gennæus nycthemerus*) 2
Lady Amherst's pheasant (*Chrysolophus amherstiæ*) 1
Ring-necked pheasant (*Phasianus torquatus*) 10
Bobwhite (*Colinus virginianus*) 2
Gambel's quail (*Lophortyx gambelii*) 1
Valley quail (*Lophortyx californica vallicola*) 1
Scaled quail (*Callipepla squamata*) 5
Massena quail (*Cyrtonyx montezumæ*) 2

GRUIFORMES

East Indian gallinule (*Porphyrio calvus*) 4
Pukeko (*Porphyrio stanleyi*) 1
Black-tailed moor hen (*Microtribonyx ventralis*) 2
American coot (*Fulica americana*) 1
South Island weka rail (*Ocydromus australis*) 3
Short-winged weka (*Ocydromus brachypterus*) 2
Earl's weka (*Ocydromus earli*) 1
Little brown crane (*Grus canadensis*) 4
White-necked crane (*Grus leucauchen*) 1
Indian white crane (*Grus leucogeranus*) 1
Lilford's crane (*Grus lilfordi*) 2
Australian crane (*Grus rubicunda*) 2
Demoiselle crane (*Anthropoides virgo*) 4
Crowned crane (*Balearica pavonina*) 1
Kagu (*Rhynochetos jubatus*) 2

CHARADRIIFORMES

Lapwing (*Vanellus vanellus*) 1
Yellow-wattled lapwing (*Lobivanellus indicus*) 1
Pacific gull (*Gabianus pacificus*) 1
Great black-backed gull (*Larus marinus*) 4
Herring gull (*Larus argentatus*) 3
Silver gull (*Larus novæhollandiæ*) 16
Laughing gull (*Larus atricilla*) 2
Crowned pigeon (*Goura coronata*) 2
Victoria crowned pigeon (*Goura victoria*) 1
Australian crested pigeon (*Ocyphaps lophotes*) 4
Bronze-wing pigeon (*Phaps chalcoptera*) 3
Marquesan dove (*Gallicolumba rubescens*) 12
Bleeding-heart dove (*Gallicolumba luzonica*) 2
Wonga-wonga pigeon (*Leucosarcia picata*) 2
Wood pigeon (*Columba palumbus*) 7
Mourning dove (*Zenaidura macroura*) 3
White-fronted dove (*Leptotila fulviventris brachyptera*) 4
Necklaced dove (*Spilopelia tigrina*) 4
Zebra dove (*Geopelia striata*) 3
Bar-shouldered dove (*Geopelia humeralis*) 1
Inca dove (*Scardafella inca*) 1
Cuban ground dove (*Chæmepelia passerina aflavida*) 1
Green-winged dove (*Chalcophaps indica*) 1
Ringed turtledove (*Streptopelia risoria*) 3
Fruit pigeon (*Lamprotreron superba*) 1

PSITTACIFORMES

Kea (*Nestor notabilis*) 4
Musk lorikeet (*Glossopsitta concinna*) 2

Cockateel (*Calopsitta novæhollandiæ*) 2
Roseate cockatoo (*Kakatoe roseicapilla*) 15
Bare-eyed cockatoo (*Kakatoe gymnopis*) 1
Leadbeater's cockatoo (*Kakatoe leadbeateri*) 2
Philippine cockatoo (*Kakatoe hæmaturopygia*) 1
White cockatoo (*Kakatoe alba*) 1
Sulphur-crested cockatoo (*Kakatoe galerita*) 9
Great red-crested cockatoo (*Kakatoe moluccensis*) 1
Cassin's macaw (*Ara auricollis*) 1
Mexican green macaw (*Ara mexicana*) 2
Severe macaw (*Ara severa*) 1
Blue-and-yellow macaw (*Ara ararauna*) 9
Red-and-blue-and-yellow macaw (*Ara macao*) 7
Hahn's macaw (*Diopsittaca hahni*) 1
White-eyed paroquet (*Aratinga leucophthalmus*) 1
Petz's paroquet (*Eupsittula canicularis*) 6
Golden-crowned paroquet (*Eupsittula aurea*) 3
Weddell's paroquet (*Eupsittula weddellii*) 3
Blue-winged parrotlet (*Psittacula passerina*) 14
Golden paroquet (*Brotogeris chrysosema*) 4
Tovi paroquet (*Brotogeris jugularis*) 10
Orange-winged paroquet (*Brotogeris chiriri*) 4
Yellow-naped parrot (*Amazona auropalliata*) 4
Mealy parrot (*Amazona farinosa*) 2
Orange-winged parrot (*Amazona amazonica*) 6
Blue-fronted parrot (*Amazona æstiva*) 1
Red-crowned parrot (*Amazona viridigenalis*) 6
Double yellow-head parrot (*Amazona oratrix*) 10
Yellow-headed parrot (*Amazona ochrocephala*) 4
Festive parrot (*Amazona festiva*) 5
Lesser white-fronted parrot (*Amazona albifrons nana*) 1
Santo Domingo parrot (*Amazona ventralis*) 3
Cuban parrot (*Amazona leucocephala*) 4
Maximilian's parrot (*Pionus maximiliani*) 1
Dusky parrot (*Pionus fuscus*) 2
Blue-headed parrot (*Pionus menstruus*) 2
Amazonian caique (*Pionites xanthomeria*) 5
Lesser vasa parrot (*Coracopsis nigra*) 1
Greater vasa parrot (*Coracopsis vasa*) 1
Pennant's paroquet (*Platycercus elegans*) 2
Rosella paroquet (*Platycercus eximius*) 1
Black-tailed paroquet (*Polytelis melanura*) 1
King paroquet (*Aprosmictus cyanopygius*) 1
Crimson-winged paroquet (*Aprosmictus erythropterus*) 1
Ring-necked paroquet (*Conurus torquatus*) 1
Nepalese paroquet (*Conurus nepalensis*) 1
Philippine green parrot (*Tanygnathus lucionensis*) 1
Grass paroquet (*Melopsittacus undulatus*) 19

CORACIIFORMES

Giant kingfisher (*Dacelo gigas*) 2
Yellow-billed hornbill (*Lophoceros leucomelas*) 2
Morepork owl (*Spiloglaux novæseelandiæ*) 1
Barred owl (*Strix varia*) 6
Snowy owl (*Nyctea nyctea*) 1
Screech owl (*Otus asio*) 1
Great horned owl (*Bubo virginianus*) 9
Eagle owl (*Bubo bubo*) 1
American barn owl (*Tyto perlata pratincola*) 5
Ariel toucan (*Ramphastos ariel*) 1

PASSERIFORMES

Cock of the rock (*Rupicola rupicola*) 1
Silver-eared hill-tit (*Mesia argentauris*) 1
Red-billed hill-tit (*Liothrix luteus*) 17
Black-gorgeted laughing thrush (*Garrulax pectoralis*) 2
White-eared bulbul (*Otocompsa leucotis*) 3
Red-eared bulbul (*Otocompsa jocosa*) 2
European blackbird (*Turdus merula*) 2
Piping crow shrike (*Gymnorhina tibicen*) 2
Satin bower bird (*Ptilonorhynchus violaceus*) 1
European raven (*Corvus corax*) 1
Australian crow (*Corvus coronoides*) 1
American crow (*Corvus brachyrhynchos*) 1
Magpie (*Pica pica hudsonica*) 2
Yucatan jay (*Cissilopha yucatanica*) 1
Blue jay (*Cyanocitta cristata*) 3
Green jay (*Xanthoura luxuosa*) 3
Australian gray jumper (*Struthidea cinerea*) 1
Starling (*Sturnus vulgaris*) 9

Shining starling (*Lamprocorax metallicus*) 5
Laysan finch (*Telespyza cantans*) 4
Crimson tanager (*Ramphocelus dimidiatus*) 1
Blue tanager (*Thraupis cana*) 1
Paradise whydah (*Steganura paradisea*) 3
Shaft-tailed whydah (*Tetrænura regia*) 2
Napolean weaver (*Pyromelana afra*) 1
Red-billed weaver (*Quelea quelea*) 1
Madagascar weaver (*Foudia madagascariensis*) 1
St. Helena waxbill (*Estrilda astrilda*) 3
Rosy-rumped waxbill (*Estrilda rhodopygia*) 1
Nutmeg finch (*Munia punctulata*) 3
White-headed nun (*Munia maja*) 2
Black-headed nun (*Munia atricapilla*) 13
Chestnut-breasted finch (*Munia castaneithorax*) 4
Java finch (*Munia oryzivora*) 14
White Java finch (*Munia oryzivora*) 1
Masked grassfinch (*Poëphila personata*) 6
Black-faced Gouldian finch (*Poëphila gouldiæ*) 1
Red-faced Gouldian finch (*Poëphila mirabilis*) 1
Diamond finch (*Steganopleura guttata*) 8
Zebra finch (*Tæniopygia castanotis*) 17
Cutthroat finch (*Amadina fasciata*) 12
Red-headed finch (*Amadina erythrocephala*) 2
Hooded oriole (*Icterus cucullatus*) 2
Yellow-tailed oriole (*Icterus mesomelas*) 1
Purple grackle (*Quiscalus quiscula*) 2
Greenfinch (*Chloris chloris*) 3
European goldfinch (*Carduelis carduelis*) 4
Bramble finch (*Fringilla montifringilla*) 5
Yellowhammer (*Emberiza citrinella*) 3
House finch (*Carpodacus mexicanus frontalis*) 2
San Lucas house finch (*Carpodacus mexicanus ruberrimus*) 2
Canary (*Serinus canarius*) 20
Gray singing finch (*Serinus leucopygius*) 10
Slate-colored junco (*Junco hyemalis*) 1
White-throated sparrow (*Zonotrichia albicollis*) 2
San Diego song sparrow (*Melospiza melodia cooperi*) 3
Saffron finch (*Sicalis flaveola*) 10
Seed eater (*Sporophila gutturalis*) 2
Nonpareil (*Passerina ciris*) 2
Leclancher's nonpareil (*Passerina leclancheri*) 2
Cardinal (*Cardinalis cardinalis*) 1
Red-crested cardinal (*Paroaria cucullata*) 3

## REPTILES

Alligator (*Alligator mississipiensis*) 43
Water dragon (*Physignathus lesueurii*) 3
Horned toad (*Phrynosoma cornutum*) 1
Glass snake (*Ophisaurus ventralis*) 1
Gila monster (*Heloderma suspectum*) 6
Gould's monitor (*Varanus gouldii*) 3
Blue-tongued lizard (*Tiliqua scincoides*) 1
Rock python (*Python molurus*) 2
Regal python (*Python reticulatus*) 1
Anaconda (*Eunectes murinus*) 2
Boa constrictor (*Constrictor constrictor*) 2
Black snake (*Coluber constrictor*) 5
Blue racer (*Coluber constrictor flaviventris*) 6
Coachwhip snake (*Coluber flagellum*) 2
Chicken snake (*Elaphe quadrivittata*) 1
Corn snake (*Elaphe guttata*) 2
Pilot blacksnake (*Elaphe obsoleta*) 1
Pine snake (*Pituophis melanoleucus*) 4
Bull snake (*Pituophis sayi*) 4
Western bull snake (*Pituophis catenifer*) 1
Water snake (*Natrix sipedon*) 1
Western water snake (*Natrix sipedon fasciata*) 1
Garter snake (*Thamnophis sirtalis*) 1
Western diamond rattlesnake (*Crotalus atrox*) 4
Snapping turtle (*Chelydra serpentina*) 5
Rossignon's snapping turtle (*Chelydra rossignonii*) 1
Musk turtle (*Kinosternon odoratum*)
Mexican musk turtle (*Kinosternon sonoriense*) 1
South American musk turtle (*Kinosternon scorpioides*) 5
Pennsylvania musk turtle (*Kinosternon subrubrum*) 2
Wood turtle (*Clemmys insculpta*) 1
South American terrapin (*Nicoria punctularia*) 1
Painted turtle (*Chrysemys picta*) 1
Cooter (*Pseudemys scripta*) 2
Central American cooter (*Pseudemys ornata*) 2
Gopher tortoise (*Gopherus polyphemus*) 1
Duncan Island tortoise (*Testudo ephippium*) 1
Indefatigable Island tortoise (*Testudo porteri*) 1
Albemarle Island tortoise (*Testudo vicina*) 2
South American tortoise (*Testudo denticulata*) 2
Long-necked turtle (*Chelodina longicollis*) 1

## STATEMENT OF THE COLLECTION

*Accessions during the year*

| | Mammals | Birds | Reptiles | Total |
|---|---|---|---|---|
| Presented | 45 | 124 | 52 | 221 |
| Born and hatched in National Zoological Park | 42 | 27 | | 69 |
| Received in exchange | 12 | 60 | 4 | 76 |
| Purchased | 9 | 81 | 8 | 98 |
| Transferred from other Government departments | 7 | 11 | | 18 |
| Captured | | 2 | | 2 |
| Deposited | 3 | 4 | | 7 |
| Total | 118 | 309 | 64 | 491 |

### SUMMARY

| | |
|---|---|
| Animals on hand July 1, 1923 | 1,768 |
| Accessions during the year | 491 |
| Total animals handled | 2,259 |
| Deduct loss (by exchange, death, and return of animals on deposit) | 614 |
| Animals on hand June 30, 1924 | 1,645 |

| Class | Species | Individuals |
|---|---|---|
| Mammals | 177 | 458 |
| Birds | 276 | 1,059 |
| Reptiles | 41 | 128 |
| Total June 30, 1924 | 494 | 1,645 |

### VISITORS

Attendance records exceeded the previous year (1923) by 49,452 and were 42,043 over the record year for the park (1921). The total number of visitors, as determined by count and estimate, was 2,442,880. This makes the fifth year in succession that the attendance has exceeded two millions. The greatest attendance in any one month was 352,425 in September, 1923.

The attendance by months was as follows:

| 1923 | | 1924 | |
|---|---|---|---|
| July | 269,400 | January | 73,440 |
| August | 279,550 | February | 93,263 |
| September | 352,425 | March | 211,250 |
| October | 215,975 | April | 313,150 |
| November | 114,210 | May | 209,367 |
| December | 111,000 | June | 199,850 |

Schools, classes, and other similar organizations visiting the park during the year numbered 160, with a total of 15,100 individuals.

It is interesting to note the increase in the number of visitors to the park in the past 12 years. Following are the attendance records from 1913 to 1924:

| | | | |
|---|---|---|---|
| 1913 | 633, 526 | 1919 | 1, 964, 715 |
| 1914 | 733, 277 | 1920 | 2, 229, 605 |
| 1915 | 794, 530 | 1921 | 2, 400, 837 |
| 1916 | 1, 157, 110 | 1922 | 2, 164, 254 |
| 1917 | 1, 106, 800 | 1923 | 2, 393, 428 |
| 1918 | 1, 593, 227 | 1924 | 2, 442, 880 |

## IMPROVEMENTS

Work on the new paddocks for hoofed animals near the Connecticut Avenue entrance, described fully in the last report, was finished early in the year, and the 11 yards thus provided were all occupied by animals in the fall. The superior arrangement of these paddocks for the care and exhibition of the animals has been very favorably commented upon by officials from other zoological gardens, and the pleasing sight of herds of animals in such large inclosures is greatly admired by visitors.

In late winter the birds were all removed from the North American waterfowl lake and early in the spring the lake was thoroughly cleaned of silt. The work was completed so that the waterfowl were returned before the season for nesting. The sewer from the office and stables was extended to connect with the Rock Creek intercepting sewer. A new sidewalk on the east side of the road opposite the restaurant building was completed, and roads, walks, and bridle paths throughout the park were repaired. Two old boilers in the central heating plant were replaced with new boilers of improved pattern, thus considerably increasing the heating capacity of the plant.

The usual repairs to roofs, gutters and downspouts, fences, and cages were made and much of the ironwork was painted. The old metal awning frames over the walk around the bear cages were removed, since these unsightly frames were no longer needed, the trees now providing ample shade. Work was begun on the warehouse for new or surplus animals, approved in the last plan of operations. This long-needed structure will be completed in the present year.

The most important improvement of the year has been the complete reconstruction of the central refreshment building. The old restaurant was found to be in such bad condition that very little of the material in it could be used, and in order to provide the new structure with suitable foundations it was almost entirely wrecked. The new restaurant is built chiefly of chestnut timbers salvaged from the dead trees in the reservation, and adds greatly to the ap-

pearance of the park. It was leased to a competent restaurant man, who opened it to the public in April.

### IMPORTANT NEEDS

*Exhibition building for birds.*—The outstanding need of the park is a new building for exhibition of birds. As pointed out in previous reports, the old bird house was built as a temporary structure many years ago, and is now not only in bad condition and virtually beyond repair but is so small that only a part of the valuable collection of birds can be exhibited at one time. The public space is, furthermore, entirely too restricted for present-day crowds of visitors. The collection of birds is growing in importance and value year by year, as rare and unusual specimens from all parts of the world are presented to the Government zoological gardens. Public interest in the bird collection is very great, as attested by the throngs of visitors that fill the old bird house, and it is greatly to be hoped that a new building may soon be provided for the proper care and exhibition of the birds and for the accommodation of the constantly increasing number of visitors who wish to see them to advantage.

*Funds for purchase of animals.*—Although the National Zoological Park receives numerous animals each year as gifts or in exchange for surplus stock reared in the park, sufficient funds have never been available for the purchase of rare and unusual species offered for sale from time to time. A representative or well-balanced collection of the living animals of the world can be built up and maintained only by the purchase of certain types of animals not otherwise obtainable, and opportunities to secure these desiderata must be taken up promptly if the animals are to be obtained. Animals greatly needed to fill definite gaps in the collection are offered for sale from time to time, but the park is most often unable to purchase them for lack of funds. In addition to increased appropriations to cover cost and transportation of animals, it is suggested that a fund, to be deposited with the Smithsonian Institution and held for the purchase of animals for the National Zoological Park, be inaugurated. This fund might be increased by gift or bequest, and could be regularly maintained by an act of Congress authorizing deposit in it of certain miscellaneous revenues of the park now turned into the general fund of the Treasury, these including rent of refreshment stands, restaurant, and other similar concessions.

Respectfully submitted.

N. Hollister, *Superintendent.*

Dr. Charles D. Walcott,
*Secretary, Smithsonian Institution.*

# APPENDIX 7

## REPORT ON THE ASTROPHYSICAL OBSERVATORY

SIR: The Astrophysical Observatory was conducted under the following passage of the independent offices appropriation act approved February 13, 1923:

Astrophysical Observatory: For maintenance of the Astrophysical Observatory, under the direction of the Smithsonian Institution, including assistants, purchase of necessary books and periodicals, apparatus, making necessary observations in high altitudes, repairs and alterations of buildings, and miscellaneous expenses, $15,500.

The observatory occupies a number of frame structures within an inclosure of about 16,000 square feet south of the Smithsonian administration building at Washington, and also a cement observing station and frame cottage for observers on a plot of 10,000 square feet leased from the Carnegie Solar Observatory on Mount Wilson, Calif.

A new solar observing station on Mount Harqua Hala, Ariz., was erected in July, 1920, at the expense of funds donated for the purpose by Mr. John A. Roebling, of Bernardsville, N. J., and this station has been occupied as a solar radiation observing station by the Astrophysical Observatory since October, 1920.

The present value of the buildings and equipment for the Astrophysical Observatory owned by the Government is estimated at $50,000. This estimate contemplates the cost required to replace the outfit for the purposes of the investigation.

### WORK OF THE YEAR

There have been several features of particular interest, including the installation of daily telegraphic reports from the Arizona and Chile solar-radiation stations, certain experimental forecasts based on these reports, and the measurement of the energy distribution in the spectra of 10 of the brighter stars.

*Work at Washington.*—As in previous years, the variation of the sun has been the main concern. The generosity of Mr. John A. Roebling enabled arrangements to be made for daily telegrams from our two solar radiation stations. This service was begun September 13, 1923. The results obtained in Chile are cabled in code, so that the weighted mean solar-constant value, the date and hour of observa-

tion, and its grade are all included in two words. Messages arrive at Washington from both stations within 24 hours of the actual measurements, and generally represent mean results of five independent determinations at each station. Arrangements have been made (also owing to Mr. Roebling's interest and generosity) to test the value of the solar measurements for forecasting according to the methods of Mr. H. H. Clayton. For this purpose Mr. Clayton has had a small office[1] and one assistant near his home in Canton, Mass., where he receives before noon daily from the Smithsonian Institution the weighted mean of the solar-constant values observed in Arizona and Chile on the preceding day. He makes his forecasts for 3, 4, 5, and 27 days in advance, and mails them to the Institution on the same afternoon. Thus we receive the forecasts sufficiently long before their maturity to make a very real and searching test of their validity.

These forecasts for definite days relate to the mean temperature of New York City, and are later on compared with the observed temperatures and analyzed by several purely mathematical methods quite independently of any bias of the computer. The official weather services of the various countries do not, of course, make predictions parallel to these, except in Argentina, where such forecasts are made by similar methods to Clayton's. Hence it is impossible to know at present how much gain, if any, Mr. Clayton's solar forecasts show over the present official methods. That they do show some prevision of the event, even to five days after the solar observations, is certain.

Hitherto, however, the 27-day detailed forecasts have shown no correlation with the New York temperatures. This is not at all surprising. Indeed, all such forecasts have to contend against great odds. For we recall that the march of temperature often goes quickly from crest to trough, so that even if a true forecast could be made, and it should be no more than 12 or 24 hours off in point of time, there would be large divergences between the prediction and the event. With the unyielding mathematical methods of verification this would greatly diminish the correlation found.

A fairer test for very long-range forecasts is found in general statements as to the expected departure from mean normal temperatures for coming months. These Mr. Clayton has furnished from 15 to 30 days before the beginning of each month from December, 1923, to the present time. He also furnishes similar predictions about the approaching weeks furnished three days before the beginning of the week in question. With few exceptions, these broader prognostications have been fairly verified.

[1] Thanks are due to the Canton Historical Society for use of these quarters.

On the whole, therefore, although the results are as yet far from being entirely satisfying, these experimental forecasts of Mr. Clayton's are promising enough to warrant further trial. New methods are continually being devised and tried in making them. Mr. Roebling has generously arranged to continue them until June 30, 1925. As the work is purely experimental no detailed publication of it will be made at present.

Naturally, if the forecasts made by Mr. Clayton really represent solar changes, he can not succeed unless good solar measurements are supplied. As soon as we began to receive daily telegrams from both stations occasional fairly wide disagreements of individual days commanded attention. We felt it necessary, in studying the causes of such disagreements, to revise again entirely the systems of little corrections to solar-constant values which have to be made to allow for the haziness and humidity of our atmosphere. This revision could be made with more advantage because much additional data had meanwhile accumulated.

Mr. Fowle and Mrs. Bond have worked over this matter during practically their entire time, which, however, owing to furlough, was only about three months in Mrs. Bond's case. A new method of determining these corrections has been devised by the director and Mr. Fowle, which eliminates satisfactorily the influence of the solar changes which have occurred. Hitherto this matter of solar change superposed upon the small terrestrial sources of error which we desire to eliminate has been very embarrassing. Of course, if one could wait many years before proceeding to evaluate the terrestrial effects, the solar changes, being independent or but loosely connected with local terrestrial ones, would be eliminated in the mean of a mass of observations. We can, indeed, after several years more of observing, finally proceed in this way. But wishing to make immediate use of our results a new method of procedure has fortunately occurred to us which permits us to avoid the interference of solar changes altogether. The details will be published soon.

As both to us and to the Chief of the Weather Bureau it seemed unwise to publish preliminary values of the solar constant which later on would have to be corrected, we have discontinued the frequent publications of them in the Monthly Weather Review which we have been accustomed to make for several years past. After we come to a fully satisfactory basis of systematic atmospheric corrections, these publications may be resumed.

Of the two solar-radiation stations, Montezuma, Chile, has proved far more suitable to the purpose than Harqua Hala, Ariz. It seems probable that a place somewhat farther west and decidedly higher

would be preferable to Mount Harqua Hala. Violent storms occur there in various months of the year, and the summer months in particular have proved very unsatisfactory. If financial means were available it would be highly desirable to remove the station to another site, and, indeed, a better one is already selected which would present many advantages. The cost of removal would be about $7,000.

The systematic revision of results in the hands of Mr. Fowle and Mrs. Bond has led to much improvement, as shown by the close accord of daily solar-constant values at the two stations. For the period September, 1922, to March, 1924, the average daily difference is less than 0.5 per cent. In the month of October, 1923, when the weather was fine at both stations almost every day, it ran as low as 0.2 per cent.

The solar-constant values have continued almost without exception below normal. From March, 1922, until June, 1924, the mean result for every single month was below the normal value, which is 1.938 calories per square centimeter per minute. This long-continued defect of solar radiation may well have produced interesting climatic effects. It is interesting to report in this connection a letter from M. Antoniadi, of France, stating that the polar cap of Mars is larger than it has been under parallel conditions for 70 years, and asking if the solar-radiation measurements showed anything unusual. Naturally decreased solar radiation would tend to produce that effect.

A letter from the eminent meteorologist, Doctor Bjerknes, of Norway, to Doctor Hale, of the Mount Wilson Observatory, has been referred to us, and with permission of the author is here copied in part as an indication of expert appreciation of our work:

> I have been greatly interested in the establishment of a complete "circumpolar" weather service, as this only will give the full view of the changing states of the atmosphere. This circumpolar service is now beginning to become a reality. The charts may soon more or less cover the entire northern hemisphere.
>
> But then another idea arises by itself, namely, to bring these more and more complete pictures of the varying states of our atmosphere into connection with their ultimate cause, the solar activity. * * *
>
> I am aware that the solar constant is determined every day at Mount Wilson Solar Observatory, and at the Calama Observatory of the Smithsonian Institution. * * * I think it would now be of high importance to every day have the most recent value of the solar constant incorporated in the daily meteorological issue.
>
> If this should be practicable, the value of the data which are every day at the disposal of the meteorologist would increase enormously. It is, of course, dangerous to prophesy. But a new era may perhaps begin for meteorology from the moment when the meteorologist has at his disposal every day complete data both for the sun's activity and for the state of the atmosphere over an entire hemisphere of the earth.

*Work at the two solar-radiation stations.*—The results just discussed are, of course, the fruit of the zealous work of our observers in Arizona and Chile. Mount Harqua Hala continues under the direction of Mr. A. F. Moore, who was assisted until March 1, 1924, by Mr. P. E. Greeley. After Mr. Greeley's resignation, Mr. A. H. Worthing assisted from May 20 to June 30, but then resigned. At Montezuma, Chile, the station continued in charge of Mr. L. B. Aldrich, assisted by Mr. F. A. Greeley.

Many comforts and observing improvements have been added at both stations at small expense owing to the ingenuity and hard manual labor of the observers. At both stations all possible days for solar-constant work have been utilized, and with very high accuracy of observation. About 75 per cent of all days were observed in Arizona and above 80 per cent in Chile. The months of July, August, and September, however, were very unfavorable at Harqua Hala, because of unusual cloudiness which prevailed all over that section of the United States. This abnormal state of the sky was indeed made specially prominent by the almost complete failure of all the California observations of the total solar eclipse of September 10, 1923. Many observations of these months must be rejected on account of unfavorable sky.

Mr. W. H. Hoover assisted Mr. Moore for a few weeks in May, 1923. While Mr. and Mrs. Moore were away in Australia setting up near Sydney a solar-radiation outfit ordered by Rev. E. F. Pigot, of Riverview College, for a committee of interested Australians, Mr. and Mrs. Hoover relieved them at Harqua Hala from July until September. Mr. Hoover was thus prepared by actual field experience to be director of the Argentine Government's new solar-radiation station at La Quiaca.

The outfit for this station was prepared at the Smithsonian Institution after designs of the writer, and the finer parts, such as those of the bolometer and galvanometer, were constructed by Mr. Hoover. Shipment was made in January, 1924, and the station at La Quiaca made ready for solar observing in June, 1924. Thus the Argentine Government is the first agency outside the Smithsonian Institution to undertake regular determinations of the variation of the sun. Their official weather service still receives daily telegraphic reports from our station at Montezuma, Chile, and it will supplement these by its own solar-radiation measurements at La Quiaca.

*Field work at Mount Wilson.*—The director and Mrs. Abbot occupied this station from July to October, 1923. Three objects were in view—First, to set up apparatus and begin observations on the variations of atmospheric ozone after the ingenious spectroscopic method of Fabry and Buisson. M. Fabry was so kind as to supervise the

ordering in Paris of all the special quartz and fluorite optical parts needed. Owing to the detached service of the Smithsonian instrument maker, Mr. Kramer, who was engaged in making the Australian and Argentine solar radiation outfits, no work had been done toward mounting the optical parts for ozone studies or, indeed, toward preparing for other experiments of the expedition. So it happened that the director spent several weeks on Mount Wilson at instrument making and was not quite ready to begin the ozone observations in 1923.

The second object was to test new improvements on the solar cooker. By the lively interest of Director Stratton, the Bureau of Standards had constructed by their skillful glass blower, Mr. Sperling, a long, pyrex-glass, double-walled vacuum tube to inclose the heater tube of the Mount Wilson solar cooker. As stated in Volume IV of the Annals of the Astrophysical Observatory, nearly nine-tenths of the loss of heat had hitherto occurred from the heater tube within the great mirror. It was to check this loss that the new device was planned.

Unfortunately, the aluminum of the mirror was found much deteriorated and could not be fully restored by polishing. Hence the mirror was very inefficient in 1923. Nevertheless, the vacuum tube showed its efficiency by the fact of the heating of the oven to 175° C., or fully 25° C. above the usual maximum temperatures of 1920. But new troubles arose. The oil circulation became leaky at the new high temperature, spontaneous combustion of the cotton heat insulation occurred, and the experiments had to be stopped after long-continued vain attempts to close the leaks by soldering. Also the vacuum tube, which was really made too long for safety, soon broke under the unequal heating strains. After this breakage occurred the maximum temperatures attained were but 120° C., showing that over 50° C. of advantage came from the employment of the vacuum device. The experiments seemed so promising that a continuation of them was arranged for 1924, and new and improved instrumental constructions were prepared by Mr. Kramer during the winter months

The third piece of work attempted was with the 100-inch telescope on the energy spectrum of the brighter stars. Messrs. Abbot and Aldrich had, indeed, done this with moderate success in 1922, employing the vacuum bolometer and galvanometer. But great trouble had been found in the use of those instruments at extreme sensibility. Fortunately, the late Dr. E. F. Nichols had offered to have prepared a radiometer of improved design for the work. This instrument, constructed by Dr. J. D. Tear, proved equally as sensitive

as the bolometer used in 1922, and practically as easy to use as a meter stick.

With it and with a new optical arrangement designed by the writer, and largely constructed by him, very interesting results were obtained. The spectra of 10 stars, including the sun, as cast by a 60° flint-glass prism, were measured successfully. As the sun's energy spectrum is well known, it was possible to eliminate by comparison with it all of the chief instrumental and atmospheric losses. Thus the results appear as stellar energy curves outside our atmosphere, expressed on the normal or wave-length scale. As the deflections observed were fairly large, no less than 50 millimeters at maximum in the spectrum of Betelgeuse, for example, the curves are of very fair accuracy over most of their extent. It was possible to improve them in the shorter wave-length region where they were inaccurate by employing visual and photographic results of German observers. Thus the whole of the intense part of the spectrum of the yellow and red stars and a large part of that of the white and blue ones were well delineated. From these results good estimates could be made of the star temperatures on the "black-body" basis. Furthermore, estimates of the diameters necessary in "black bodies" to produce at those temperatures the observed amounts of energy were made. It is gratifying to find these results on stellar diameters as accordant as could be expected with those of Pease made by means of Michelson's method of the interferometer. A summary follows:

*Stellar temperatures, radiation, and diameters*

| Star | Absolute temperature C. | N [1] Unit= $10^{-11}$ | Parallax | Diameter ⊙=1 [2] | | |
|---|---|---|---|---|---|---|
| | | | | Radiometer | Interferometer | Russell |
| | *Degrees* | | ″ | | | |
| Sun | 6,000 | | | | | |
| β Orionis | 16,000 | 3.20 | 0.007 | 20 | | 2.8 |
| α Lyrae | 14,000 | 6.10 | .130 | 2 | | 3. |
| α Canis Majoris | 11,000 | 6.60 | .370 | 1.2 | 2 | |
| α Canis Minoris | 8,000 | 1.24 | .315 | 1.1 | | 1.6 |
| α Aurigae | 5,800 | 2.20 | .071 | 13 | | 9. |
| α Tauri | 3,000 | 2.54 | .053 | 70 | 39 | |
| β Pegasi | 2,850 | 1.11 | .026 | 94 | 82 | |
| α Orionis | 2,600 | 7.90 | .017 | 510 | 280 | |
| α Herculis | 2,500 | 3.60 | .007<br>.013 | 900<br>480 | | 230. |

[1] N=ratio of stellar to solar radiation outside earth's atmosphere.
[2] To express in kilometers, multiply by $1.42 \times 10^6$. To express in miles, multiply by $0.865 \times 10^6$.

## SUMMARY

The year has been notable for the establishment of daily telegraphic solar-constant intelligence from Montezuma, Chile, and Harqua Hala, Ariz., through the interest and generosity of Mr. John

A. Roebling. Also, due to the same support, experimental temperature forecasts for New York City, based on these daily reports of solar changes, have been regularly submitted by Mr. H. H. Clayton for certain periods of time in advance. Revision of the solar radiation results of the two stations shows average daily accord to less than 0.5 per cent in their solar-constant determinations. Observations have been received from one or both solar-radiation stations on about 90 per cent of all days. Further experiments with the solar cooker have resulted in some advancement and have pointed the way to further progress. Apparatus has been made ready for determinations of atmospheric ozone after the method of Fabry and Buisson. Highly interesting results on stellar energy spectrum distribution and on star diameters have been obtained with a Nichols radiometer in cooperation with the Mount Wilson Observatory of the Carnegie Institution.

Respectfully submitted.

C. G. Abbot, *Director.*

Dr. Charles D. Walcott,
*Secretary, Smithsonian Institution.*

# APPENDIX 8

## REPORT ON THE INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE

SIR: I have the honor to submit the following report on the operations of the United States Regional Bureau of the International Catalogue of Scientific Literature for the fiscal year ending June 30, 1924.

As has been stated in several previous annual reports, political and financial conditions in Europe, caused by the late war, forced a suspension of the printing and publishing of the International Catalogue after the fourteenth annual issue had been completed in July, 1921. A total of 240 volumes had been published up to the time that printing was suspended. This series of publications constitutes a classified index catalogue of the scientific literature of the world for 14 years, from 1901 to 1914, inclusive, and furnishes the only example of such work ever published. In spite of numerous attempts to resume publication it has been found impossible to do so in the face of the continued unsettled condition of international monetary standards. The continued high price of materials and labor entering into publishing expenses brings the cost of the 10,000 pages of each annual issue of the catalogue up to impossible figures when expressed in terms of the depreciated currency of many of the cooperating countries.

In 1922, finding that immediate resumption of publication was impossible, an international convention was held in Brussels to consider means whereby the organization could be held intact. A resolution to this end was suggested by this regional bureau and was unanimously agreed to. The resolution was:

> That the convention is of opinion that the international organization should be kept in being through mutual agreement to continue as far as possible the work of the regional bureaus until such time as it may be economically possible to resume publication.

The other countries represented at this convention, as well as the United States, have since that time lived up to the spirit of this resolution.

The present aim of this bureau is to collect and record the data necessary to index the current scientific publications of the United

States without attempting to classify the subjects of the papers themselves, for before publication is resumed it will be necessary to completely revise the classification schedules heretofore used in order to keep abreast with ever advancing scientific discoveries and the consequently changing requirements of investigators and students.

The need of a definite, concrete, and internationally satisfactory plan of operation to govern any organization undertaking to index and classify current scientific literature is now more evident than it was 24 years ago when the International Catalogue was founded, for since the publication of the catalogue by this organization was suspended many plans have been suggested but none have so far been found satisfactory or practical. Schemes which take into consideration only local or special needs are found useless when world-wide needs are considered. And when such schemes are compared with the far-reaching, time-tried, and officially recognized organization of the International Catalogue of Scientific Literature, whose scope embraces all scientific subjects and whose field is world-wide, their inadequacy is at once apparent.

In aiming to meet the various needs of scientific specialists and students several forms of service are required:

1. Immediate notices which may be furnished by means of cards or assembled reference data to meet the requirements of specialists in restricted fields.

2. Monthly or quarterly classified records furnishing not only complete index data but also, to meet the needs of general students as well as specialists, brief abstracts of the subject contents of each paper noted.

3. Yearly catalogues or yearbooks, each covering a recognized subdivision of science, collectively furnishing a permanent, assembled, classified record of all scientific activities. Such collective records are the only ones suited to meet the needs and requirements of librarians as well as future investigators.

As in the preparation of each of these aids to scientific investigation the same materials are required and the same methods of indexing and classifying are employed, it is evident that consolidation, or at least close cooperation, should exist between all organizations undertaking such work.

Many abstracting agencies now exist and attempts are being made to establish more, but taken collectively they fail to cover all branches of science and are too dissimilar in their methods and form of publication to take the place of a concise, classified, permanent record of scientific publications so urgently needed by specialists

and librarians alike. It was chiefly to meet this need that the International Catalogue was originally founded.

Respectfully submitted.

LEONARD C. GUNNELL,
*Assistant in Charge.*

DR. CHARLES D. WALCOTT,
*Secretary, Smithsonian Institution.*

# APPENDIX 9

## REPORT ON THE LIBRARY

SIR: I have the honor to submit the following report on the activities of the library of the Smithsonian Institution and of the libraries of the bureaus under its administration for the fiscal year ended June 30, 1924.

The use of the library by members of the Smithsonian staff has been stimulated by the publication each fortnight in Smithsonian Local Notes of principal additions to the collections and by the daily circulation among heads of scientific departments and divisions of a typewritten list of original articles appearing in periodicals received for the main library.

While the libraries administered under the Smithsonian Institution are used principally for reference in connection with advanced scientific and technological research and special administrative problems, their facilities are open to all. Every book is available to the public, through consultation, by borrowing through an accredited library, or by means of photographic reproduction at the correspondent's expense.

### SMITHSONIAN MAIN LIBRARY

The number of publications received for the main library was 8,678, consisting of 4,044 volumes, 2,126 parts, 2,332 pamphlets, and 176 charts. The total number of accessions has reached 544,980, representing 901,985 publications.

Theses and academic publications were received from abroad from universities located at the following places: Algiers, Berlin, Bern, Copenhagen, Dijon, Dorpat, Freiburg, Giessen, Graz, Halle, Kiel, Königsberg, Liège, London, Lund, Manchester, Marburg, Montpellier, Paris, Prague, Rennes, Strasbourg, Tokyo, Utrecht, Vienna, Warsaw, Wilno, and Zürich.

Of a total of 3,352 missing parts of incomplete sets requested in exchange, 1,786 were secured, a percentage of 53.2 as compared with 43.2 last year.

### SMITHSONIAN OFFICE LIBRARY

The loans from the office library were 2,749. The number of volumes catalogued was 5,348. The number of new titles added to the author catalogue was 1,125.

The gift of Dr. F. W. Clarke of 170 pamphlets, in continuation of his collection of papers on the atomic weights, brought the total number of publications accessioned up to 477.

There were 51 additions to the aeronautical collection. The growth of this collection during the past decade has been due almost entirely to the personal efforts of Mr. Paul Brockett, who has secured for it many rare and valuable works, the acquisition of which would otherwise have entailed great expense.

The cataloguing of the European Historical Series of the Watts de Peyster collection is approaching completion.

### UNITED STATES NATIONAL MUSEUM

The library of the National Museum now contains 63,691 volumes and 101,057 pamphlets, making a total of 164,748 publications. Of these 1,521 volumes and 2,667 pamphlets represent the increase of the year; 14,528 parts of periodicals were entered. Owing to lack of funds, only 163 books were bound.

The number of loans reached a total of 10,577. Many more volumes were consulted without being taken out. There were borrowed 1,929 books from the Library of Congress and 130 from other libraries.

When it is realized that 6,139 of the library's loans were made to the sectional libraries, the importance of the latter will become readily apparent. The sectional libraries maintained are as follows:

Administration.
American archeology.
Anthropology.
Birds.
Botany.
Echinoderms.
Editor's office.
Ethnology.
Fishes.
Foods.
Geology.
Graphic arts.
History.
Insects.
Invertebrate paleontology.
Mammals.
Marine invertebrates.
Mechanical technology.
Medicine.
Minerals.
Mineral technology.
Mollusks..
Old World archeology.
Paleobotany.
Photography.
Physical anthropology.
Property clerk's office.
Reptiles and batrachians.
Superintendent's office.
Taxidermy.
Textiles.
Vertebrate paleontology.
War library.
Wood technology.

The sectional libraries are under the immediate custody of members of the administrative and scientific staffs, to whom the Museum is also indebted for many valuable gifts to the library and timely suggestions for the increase of its collections in the fields listed above. Among the donors for the present year should be men-

tioned Messrs. Paul Bartsch, R. S. Bassler, J. E. Benedict, A. G. Boving, Austin H. Clark, F. W. Clarke, W. H. Dall, C. T. Greene, O. P. Hay, W. H. Holmes, Aleš Hrdlička, E. W. Keyser, W. R. Maxon, G. S. Miller, A. J. Olmsted, C. W. Richmond, S. A. Rohwer, B. H. Swales, and Charles D. Walcott. The gifts of Doctor Dall to the sectional library of mollusks numbered 167 titles. Through the efforts of Doctor Bassler, the Museum has been fortunate in securing the library of the late Edgar E. Teller, paleontologist, of Buffalo, N. Y. The books were received shortly before the close of the fiscal year.

The number of cards added to the subject catalogue was 2,810.

### OTHER BRANCH LIBRARIES

The branch libraries at the Astrophysical Observatory, the National Zoological Park, the National Gallery of Art, and the Freer Gallery of Art received a number of accessions during the year. The activities of the library of the Bureau of American Ethnology are covered in the report of the chief of that bureau.

### SUMMARY OF RECEIPTS AND ACCESSIONS

The number of pieces of mail received during the year was 28,783, of which 7,321 publications were Government documents, and were sent to the Library of Congress, in accordance with the established practice. Additions to the library, as shown by the accession records, are given below.

| Library | Volumes | Other publications | Total |
|---|---|---|---|
| Astrophysical Observatory | 89 | 60 | 149 |
| Freer Gallery of Art | 380 | | 380 |
| National Gallery of Art | 132 | 226 | 358 |
| National Zoological Park | 16 | 3 | 19 |
| Smithsonian deposit | 4,044 | 4,634 | 8,678 |
| United States National Museum | 1,521 | 2,667 | 4,188 |
| Smithsonian office | 277 | 200 | 477 |
| Total | 6,459 | 7,790 | 14,249 |

Respectfully submitted.

N. P. Scudder,
*Acting Assistant Librarian.*

Dr. Charles D. Walcott,
*Secretary, Smithsonian Institution.*

# APPENDIX 10

## REPORT ON PUBLICATIONS.

SIR: I have the honor to submit the following report on the publications of the Smithsonian Institution and its branches during the year ending June 30, 1924:

The Institution proper published during the year 13 papers in the series of Miscellaneous Collections, and 1 special publication. The Bureau of American Ethnology published 3 bulletins and a list of the publications of the bureau. The United States National Museum published 1 annual report, 1 volume of proceedings, 3 complete bulletins, 4 parts of bulletins, 4 parts of volumes in the series Contributions from the United States National Herbarium, and 39 separates from the proceedings.

Of these publications there were distributed during the year 142,385 copies, which includes 407 volumes and separates of the Smithsonian Contributions to Knowledge, 25,937 volumes and separates of the Smithsonian Miscellaneous Collections, 19,085 volumes and separates of the Smithsonian annual reports, 3,743 Smithsonian special publications, 78,734 volumes and separates of the various series of the National Museum publications, 13,974 publications of the Bureau of American Ethnology, 78 publications of the National Gallery of Art, 65 volumes of the Annals of the Astrophysical Observatory, 35 reports on the Harriman Alaska Expedition, 1,275 reports of the American Historical Association, and 52 publications presented to but not issued directly by the Smithsonian Institution or its branches.

### SMITHSONIAN MISCELLANEOUS COLLECTIONS

Of the Smithsonian Miscellaneous Collections, volume 67, 1 paper was issued; volume 71, 1 paper; volume 73, 1 paper; volume 75, 1 paper; volume 76, 9 papers; in all, 13 papers, as follows:

#### VOLUME 67

No. 9. Cambrian Geology and Paleontology. IV. No. 9. Cambrian and Ozarkian Brachiopoda, Ozarkian Cephalopoda and Notostraca. By Charles D. Walcott. June 3, 1924. Pp. 477–554; pls. 106–126. (Publ. 2753.)

#### VOLUME 71

No. 1. Smithsonian Physical Tables. Second reprint of seventh revised edition. November 28, 1923. 458 pp. (Publ. 2539.)

VOLUME 73

No. 2. Opinions Rendered by the International Commission on Zoological Nomenclature. Opinions 78 to 81. February 9, 1924. 32 pp. (Publ. 2747.)

VOLUME 75

No. 1. Cambrian Geology and Paleontology. V. No. 1. Geological Formations of Beaverfoot-Brisco-Stanford Range, British Columbia, Canada. By Charles D. Walcott. June 28, 1924. Pp. 1–51, pls. 1–8, text figs. 1–11. (Publ. 2756.)

VOLUME 76

No. 2. History of Electric Light. By Henry Schroeder. August 15, 1923. 95 pp., 97 illus. (Publ. 2717.)

No. 3. On the Fossil Crinoid Family Catillocrinidae. By Frank Springer. August 3, 1923. 41 pp., 5 pls. (Publ. 2718.)

No. 4. Report on Cooperative Educational and Research Work Carried on by the Smithsonian Institution and its branches. July 28, 1923. 30 pp. (Publ. 2719.)

No. 5. The Telescoping of the Cetacean Skull. By Gerrit S. Miller, jr. August 31, 1923. 70 pp., 8 pls. (Publ. 2720.)

No. 6. Descriptions of New East Indian Birds of the Families Turdidae, Sylviidae, Pycnonotidae, and Muscicapidae. By Harry C. Oberholser. July 16, 1923. 9 pp. (Publ. 2721.)

No. 7. Description of an Apparently New Toothed Cetacean from South Carolina. By Remington Kellogg. July 25, 1923. 7 pp., 2 pls. (Publ. 2723.)

No. 8. Additional Designs on Prehistoric Pottery. By J. Walter Fewkes, Chief, Bureau of American Ethnology. January 22, 1924. 46 pp., 101 text figs. (Publ. 2748.)

No. 9. The Brightness of Lunar Eclipses, 1860–1922. By Willard J. Fisher. February 18, 1924. 61 pp. (Publ. 2751.)

No. 10. Explorations and Field Work of the Smithsonian Institution in 1923. March 31, 1924. 128 pp., 123 text figs. (Publ. 2752.)

SMITHSONIAN ANNUAL REPORTS

*Report for 1922.*—The Annual Report of the Board of Regents for 1922 was still in press at the close of the fiscal year. The general appendix to this report contains the following articles:

Who will promote science? by C. G. Abbot.
Recent discoveries and theories relating to the structure of matter, by Karl Taylor Compton.
The architecture of atoms and a universe built of atoms, by C. G. Abbot.
Aeronautic research, by Joseph S. Ames.
Photosynthesis and the possible use of solar energy, by H. A. Spoehr.
Fogs and clouds, by W. J. Humphreys.
Some aspects of the use of the annual rings of trees in climatic study, by Prof. A. E. Douglass.
The age of the earth, by T. C. Chamberlin and others.
How deep is the ocean? by C. G. Abbot.
Two decades of genetic progress, by E. M. East.
Observations on a Montana beaver canal, by S. Stillman Berry.

The Republic of Salvador, by Paul C. Standley.
The tent caterpillar, by R. E. Snodgrass.
The life history and habits of the solitary wasp, *Philanthus gibbosus*, by Edward G. Reinhard.
The use of idols in Hopi worship, by J. Walter Fewkes.
Two Chaco Canyon pit houses, by Neil M. Judd.
Collections of Old World archeology in the United States National Museum, by I. M. Casanowicz.
The "Shake Religion" of Puget Sound, by T. T. Waterman.
Excavations at Askalon, by Prof. J. Garstang.
National efforts at home making, by F. H. Newell.
Ideals of the telephone service, by John J. Carty.

*Report for 1923.*—The report of the executive committee and proceedings of the Board of Regents of the Institution, and the report of the secretary, both forming parts of the annual report of the Board of Regents to Congress, were issued in pamphlet form in December, 1923.

Report of the executive committee and proceedings of the Board of Regents of the Smithsonian Institution for the year ending June 30, 1923. 13 pp. (Publ. 2750.)
Report of the Secretary of the Smithsonian Institution for year ending June 30, 1923. 125 pp. (Publ. 2749.)

The general appendix to this report, which was in press at the close of the year, contains the following papers:

The constitution and evolution of the stars, by Henry Norris Russell.
The sun and sunspots, 1820–1920, by E. Walter Maunder.
Joining the electric wave and heat wave spectra, by E. F. Nichols and J. D. Tear.
The possibilities of instrumental development, by George E. Hale.
The borderland of astronomy and geology, by Prof. A. S. Eddington.
Atmospheric nitrogen fixation, by Eric A. Lof.
The place of proteins in the diet in the light of the newer knowledge of nutrition, by H. H. Mitchell.
The story of the production and uses of ductile tantalum, by Clarence W. Balke.
The composition of the earth's interior, by L. H. Adams and N. L. Williamson.
Diamond-bearing peridotite in Pike County, Ark., by H. D. Miser and C. S. Ross.
Recent progress and trends in vertebrate paleontology, by W. D. Matthew.
Animals in the National Zoological Park, by N. Hollister.
The burrowing rodents of California as agents in soil formation, by Joseph Grinnell.
The natural history of China, by A. de C. Sowerby.
Life in the ocean, by Austin H. Clark.
A study of the flight of sea gulls, by R. C. Miller.
Insect musicians and their instruments, by R. E. Snodgrass.
The gardens of ancient Mexico, by Mrs. Zelia Nuttall.
A new national monument (Hovenweep), by J. Walter Fewkes.
The genesis of the American Indian, by A. Hrdlička.
Ruined cities of Palestine, east and west of the Jordan, by Arthur W. Sutton.

The anthropological work of Prince Albert 1st of Monaco and recent progress in human paleontology in France, by Marcellin Boule.
The utilization of volcanic steam in Italy.
Proposed tidal hydroelectric power development of Petitcodiac and Memramcook Rivers, by W. Rupert Turnbull.
Sir James Dewar, by Sir James Crichton-Browne.
J. C. Kapteyn, by A. Van Maanen.
Julius Von Hann, by C. G. S.

SPECIAL PUBLICATION

The following special publication was issued during the year:

Classified List of Smithsonian Publications Available for Distribution, March 1, 1924. 30 pp. (Publ. 2755.)

PUBLICATIONS OF THE UNITED STATES NATIONAL MUSEUM

The publications of the National Museum are: (*a*) The annual report, (*b*) the Proceedings of the United States National Museum, and (*c*) the Bulletin of the United States National Museum, which includes the contributions from the United States National Herbarium. The editorship of these publications is vested in Dr. Marcus Benjamin.

During the year ending June 30, 1924, the Museum published 1 annual report, 1 volume of proceedings, 3 complete bulletins, 4 parts of bulletins, 4 parts of volumes in the series Contributions from the United States National Herbarium, and 39 separates from the proceedings.

The issues of the bulletins were as follows:

Bulletin 99, East African Mammals in the United States National Museum, Part III. Primates, Artiodactyla, Perissodactyla, Proboscidea, and Hyracoidea. By N. Hollister.
Bulletin 100. Contributions to the Biology of the Philippine Archipelago and Adjacent Regions. Volume 1, part 10. The Polyclad Turbellarians from the Philippine Islands. By Tokio Kaburaki.
Bulletin 104. The Foraminifera of the Atlantic Ocean. Part 4. Lagenidae. By Joseph Augustine Cushman.
Bulletin 104, The Foraminifera of the Atlantic Ocean. Part 5. Chilostomellidae and Globigerinidae. By Joseph Augustine Cushman.
Bulletin 125, North American Later Tertiary and Quaternary Bryozoa. By Ferdinand Canu and Ray S. Bassler.
Bulletin 127, Catalogue of the Watercraft Collection in the United States National Museum. By Carl W. Mitman.
Bulletin 128, List of North American Recent Mammals, 1923. By Gerrit S. Miller, jr.

Of the separate papers of the Contributions from the United States National Herbarium the following were issued:

Volume 22, part 7. The North American Species of Aristida. By A. S. Hitchcock.

Volume 22, part 8. New American Asteraceae. By S. F. Blake.
Volume 23, part 3. Trees and Shrubs of Mexico. (Oxalidaceae-Turneraceae.) By Paul C. Standley.
Volume 24, part 5. Economic Fruit-bearing Plants of Ecuador. By Wilson Popenoe.

Of the separates from the proceedings 11 were from volume 63, 19 from volume 64, and 9 from volume 65.

### PUBLICATIONS OF THE BUREAU OF AMERICAN ETHNOLOGY

The editorial work of the Bureau of American Ethnology is under the direction of Mr. Stanley Searles, editor. During the year, there were published three bulletins and a list of publications of the bureau, as follows:

Bulletin 79. Blood Revenge, War, and Victory Feasts among the Jibaro Indians of Eastern Ecuador (Karsten). VII, 94 pp., 10 pls.
Bulletin 80. Mandan and Hidatsa Music (Densmore). XX, 192 pp., 19 pls., 6 figs.
Bulletin 81. Excavations in the Chama Valley, New Mexico (Jeancon). IX, 80 pp., 65 pls., 38 figs.
List of Publications of the Bureau of American Ethnology. 45 pp.

At the close of the year there were in press or in preparation five annual reports and two bulletins, as follows:

Thirty-eighth Annual Report. Accompanying paper: An Introductory Study of the Arts, Crafts, and Customs of the Guiana Indians (Roth).
Thirty-ninth Annual Report. Accompanying paper: The Osage Tribe: The Rite of Vigil (La Flesche).
Fortieth Annual Report. Accompanying papers: The Mythical Origin of the White Buffalo Dance of the Fox Indians; The Autobiography of a Fox Indian Woman; Notes on Fox Mortuary Customs and Beliefs; Notes on the Fox Society Known as "Those Who Worship the Little Spotted Buffalo"; The Traditional Origin of the Fox Society Known as "The Singing Around Rite." (Michelson.)
Forty-first Annual Report. Accompanying paper: Salish Basketry (Boas).
Forty-second Annual Report. Accompanying paper: Social Organization and Social Usages of the Indians of the Creek Confederacy (Swanton).
Bulletin 78. Handbook of the Indians of California (Kroeber).
Bulletin 82. Fewkes and Gordon Groups of Mounds in Middle Tennessee (Myer).

### REPORT OF THE AMERICAN HISTORICAL ASSOCIATION

The annual reports of the American Historical Association are transmitted by the association to the Secretary of the Smithsonian Institution and are communicated by him to Congress as provided by the act of incorporation of the association.

Volume I of the Annual Report for 1919 and the supplemental volume to the report for 1920, entitled "Writings in American

History," were issued during the year. Volume II of the 1919 report, the reports for 1920 and 1921, and the supplemental volumes to the reports for 1921 and 1922 were in press at the close of the year.

### REPORT OF THE NATIONAL SOCIETY, DAUGHTERS OF THE AMERICAN REVOLUTION

The manuscript of the Twenty-sixth Annual Report of the National Society, Daughters of the American Revolution, was transmitted to Congress, in accordance with the law, on January 19, 1924.

### SMITHSONIAN ADVISORY COMMITTEE ON PRINTING AND PUBLICATION

The editor has continued to serve as secretary of the Smithsonian advisory committee on printing and publication, to which are referred all manuscripts offered to the Institution and its branches for publication. The committee also makes recommendations to the secretary on matters relating to publication policy and economy in printing. Several recommendations were made during the year with a view to conserving as far as possible the inadequate amounts at present available to the Institution and its branches for printing and binding. Nine meetings were held during the year and 100 manuscripts acted upon.

Respectfully submitted.

W. P. True, *Editor.*

Dr. Charles D. Walcott,
*Secretary, Smithsonian Institution.*

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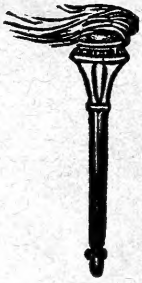
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